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C7C



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

REQUEST FOR CORRECTED PATENT OR
CERTIFICATE OF CORRECTION BASED ON PATENT OFFICE
MISTAKE PURSUANT TO 35 U.S.C. §254

APPLICANT(S): Heinrich Jürgensen CONFIRMATION NO.: 5122
SERIAL NO.: 09/786,742 GROUP ART UNIT: 2828
FILED: September 14, 2001 EXAMINER: James A. Menefee
PATENT NO.: 6,888,853 *B1* ISSUED: May 3, 2005
TITLE: "LASER RADIATION SOURCE"

ATTN: Certificate of Correction Branch
Commissioner of Patents
P. O. Box 1450
Alexandria, VA 22313-1450

Certificate
MAY 24 2005
of Correction

S I R:

Pursuant to 35 U.S.C. §254 and MPEP 1480, in order to correct printing errors, Applicant submits herewith for U.S. Patent 6,888,853 an attached Certificate of Correction, which could also be the basis for a corrected patent, based on the discretion of the Patent Office.

On the cover sheet of the patent, a substantial number of U.S. Patent documents, foreign patent documents, and other publications cited by Applicant before the close of prosecution were not listed in the prior art section.

Pursuant to MPEP 1480.01 – Expedited Issuance of Certificates of Correction – Error Attributable to the U. S. Patent Office – please find enclosed herewith as Exhibit A the Examiner's listing on Form PTO-1449 dated January 14, 2003 of the references considered, but which were mistakenly not indicated on the face of the printed '853 patent. Although the references on page 1 of 1 dated January 13 were

MAY 25 2005

listed (Exhibit A), the references considered by the Examiner on January 14, 2003 were not included on the cover sheet of the '853 patent.

In the printed drawings, some but not all of the legend translations were shown in the printed patent drawings. This error is corrected by the legends added in the attached Certificate of Correction

As shown by the attached Drawing Correction Letter (Exhibit B) referenced in Applicant's Preliminary Amendment deposited with the U.S. Post Office by Express Mail on March 8, 2001 (Exhibit C) the translation of the German legends on the drawing figures was made. The formal drawings with these changes were sent to the U.S. Patent Office on September 14, 2001 as approved by the Examiner in the Office Action of January 30, 2003 (Exhibit D), except for mis-spellings in Figs 1 and 8). The Examiner also requested that Figures 2 and 2a be labeled "Prior Art". This was done in accordance with new formal drawings sent to the Patent Office, the receipt of which was confirmed by the Examiner in the Office Action of August 13, 2003 (Exhibit E).

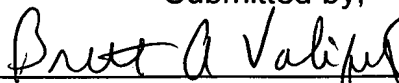
It is noted that the Patent Office has the discretion, pursuant to 35 U.S.C. §254 (MPEP 1480), to issue a corrected patent without charge in lieu of and with like effect as a Certificate of Correction. Because of the numerous printing errors by the Patent Office, the Patent Office should consider a corrected patent in this instance.

If the Examiner has any questions concerning this Certificate of Correction, a telephone interview is suggested with Applicant's attorney.

MAY 25 2005

For convenience, a copy of the cover sheet and all drawing figures for printed
U.S. Patent 6,888,853 are enclosed.

Submitted by,



(Reg. 27,841)

BRETT A. VALIQUET
SCHIFF HARDIN LLP
Patent Department
6600 Sears Tower
Chicago, Illinois 60606
Telephone: 312/258-5786
Attorneys for Applicant(s).
CUSTOMER NO. 26574

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA. 22313-1450 on May 18, 2005.


BRETT A. VALIQUET

MAY 25 2005

Notice of References Cited

Application/Control No.

09/786,742

Applicant(s)/Patent Under
Reexamination
JURGENSEN, HEINRICH

Examiner

James A. Menefee

1/13/03

Art Unit

2828

Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
	A	US-5,867,305-A	02-1999	Waarts et al.	359/341
	B	US-5,363,233-A	11-1994	Pernick	359/316
	C	US-6,167,075-A	12-2000	Craig et al.	372/75
	D	US-5,202,893-A	04-1993	Kubota et al.	372/34
	E	US-5,373,526-A	12-1994	Lam et al.	372/69
	F	US-5,369,661-A	11-1994	Yamaguchi et al.	372/69
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

09/786742
JCU Rec'd PCT/PTO 08 MAR 2001

Part of
page #5

PCT/DE99/02721

Form P.T.O. 1449

U.S. Department of Commerce
Patent and Trademark Office

Docket No.
P01,0032

Serial No.
New Application

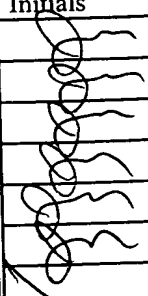
Applicant
Heinrich JÜRGENSEN

Filing Date
Herewith

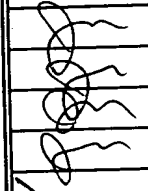
Group Art Unit

LIST OF PRIOR ART CITED BY APPLICANT
(use several sheets if necessary)

U.S. PATENT DOCUMENTS

Examiner's Initials		Document Number	Date	Name	Class	Subclass	Filing Date If appropriate
	AA	5,084,882	01/28/92	Hughes			
	AB	5,337,325	08/09/94	Hwang			
	AC	5,396,506	03/07/95	Ball			
	AD	5,416,298	05/16/95	Roberts			
	AE	5,430,816	07/04/95	Furuya et al.			
	AF	5,694,408	12/02/97	Bott et al.			
	AG						

FOREIGN PATENT DOCUMENTS

		Document Number	Date	Country	Class	Subclass	Translation	
							Yes	No
	AL	2 154 364	04/09/85	Gt. Britain				
	AM	195 11 393	02/10/96	Germany				
	AN	WO 95/16294	15/06/95	PCT				
	AO	DE 196 03 111	07/08/97	Germany				
	AP							
	AQ1							
	AQ2							

OTHER PRIOR ART (Including Author, Title, Date, Pertinent Pages, Etc.)

	AR	
	AS	
	AT	
	AU	
	AV	
	AY	

Examiner

Date Considered 1/14/03

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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09/786742
JC02 Rec'd PCT/PTO D 8 MAR 2001

PCT/DE99/02721

Form P.T.O. 1449

U.S. Department of Commerce
Patent and Trademark Office

Docket No.
P01,0032

Serial No.
New Application

LIST OF PRIOR ART CITED BY APPLICANT
(use several sheets if necessary)

Applicant

Heinrich JÜRGENSEN

Filing Date
Herewith

Group Art Unit

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AN	WO 95/16294	15/06/95	PCT				
AO	DE 196 03 111	07/08/97	Germany				
AP							
AQ1							
AQ2							

OTHER PRIOR ART (Including Author, Title, Date, Pertinent Pages, Etc.)

AR	Schäfer & Kirchoff Opto-Sensorik Und Messtechnik
AS	
AT	
AU	
AV	
AY	

Examiner

Date Considered

1/14/03

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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Sheet 1 of 1

37 CFR 1.501
INFORMATION DISCLOSURE STATEMENT
IN A PATENT
(use several sheets if necessary)

Docket No.
P01,0032

Serial No.
09/786,742

Applicant
Heinrich Jürgensen

Filing Date
March 8, 2001

Group Art Unit

U.S. PATENT DOCUMENTS

Examiner's Initials		Document Number	Date	Name	Class	Subclass	Filing Date If appropriate
	AA						
	AB						
	AC						
	AD						
	AE						
	AF						
	AG						
	AH						
	AI						
	AJ						
	AK						

FOREIGN PATENT DOCUMENTS

		Document Number	Date	Country	Class	Subclass	Translation	
							Yes	No
	AL							
	AM							
	AN							
	AO							
	AP	1 927 323	29/05/69	Germany				
	AQ1	0 041 241	09/12/81	Europe				
	AQ2	0 473 973 B1	11/03/92	Europe				
	AQ3							

OTHER PRIOR ART (Including Author, Title, Date, Pertinent Pages, Etc.)

	AR	
	AS	"Optik und Atomphysik"; R. W. Pohl; 13, Auflage; Springer Verlag 1976: Seite 13; Abb 2.21
	AT	"Lehrbuch der Experimentalphysik, Band III, Optik: I Bergmann-Schaefer; 7. Auflage; De Gruyter 1978 Seite 152
	AU	"Lehrbuch "Optik"; Klein und Furtak: Springer 1988; Seiten 140-141
	AV	"Schnelles Elektronenstrahl-Graviervverfahren zur Gravur von Metallzylindern"; W. Boppel; aus Optik 77; No. 2; 1987; Seiten 83-92
	AW	"Laser in der Druckindustrie"; Werner Hülsbusch, Konstanz; Seite 431; Abb. 7-28 etc.
	AX	Leistungsskalierung von Faserlasern; Fachbereich Physik der UNI Hannover; Dipl.-Phys. Zellmer; 1996
	AY	"Direktes Lasergraviervverfahren für metallbeschichtete Tiefdruckzylinder" Dr. phil. Nat Jacob Frauchinger, MDC Max Dätwyler AG, Darmstadt; 12. Dez. 1996
Examiner	Date Considered 1/14/03	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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Sheet 1 of 1

37 CFR 1.501 INFORMATION DISCLOSURE STATEMENT IN A PATENT (use several sheets if necessary)						Docket No. P01,0032		Serial No. 09/786,742	
						Applicant Heinrich Jürgensen			
						Filing Date March 8, 2001		Group Art Unit	

U.S. PATENT DOCUMENTS							
Examiner's Initials		Document Number	Date	Name	Class	Subclass	Filing Date If appropriate
	AA						
	AB						
	AC						
	AD						
	AE						
	AF						
	AG						
	AH						
	AI						
	AJ						
	AK						

FOREIGN PATENT DOCUMENTS								
		Document Number	Date	Country	Class	Subclass	Translation	
							Yes	No
	AL							
	AM							
	AN							
	AO							
	AP	1 927 323	29/05/69	Germany				
	AQ1	0 041 241	09/12/81	Europe				
	AQ2	0 473 979 B1	11/03/92	Europe				
	AQ3							

OTHER PRIOR ART (Including Author, Title, Date, Pertinent Pages, Etc.)		
	AR	
	AS	
	AT	
	AU	
	AV	
	AY	
	AZ1	"Katalog Fa IPG Laser GmbH; D-57299 Burbach; (IRE-Polus Group); 1997
	AZ2	"Gesamtkatalog G3; Best - Nr. 650020; Fa. Laser Spindler & Hoyer, Göttingen; Seiten F16-F33; Seite G16; Seiten K16 und K17;
	AZ3	"Optimization of micro channel heat sinks for high power diode laser in copper technology"; SPIE Proceedings Vol 3097, 1997

Examiner	Date Considered 11/14/03
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*EXAMINER: Initial if reference considered; whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

BOX PCT
IN THE UNITED STATES ELECTED OFFICE
OF THE UNITED STATES PATENT AND TRADEMARK OFFICE
UNDER THE PATENT COOPERATION TREATY-CHAPTER II

5

DRAWING CORRECTION LETTER

APPLICANT: HEINRICH JÜRGENSEN

DOCKET NO: P01,0032

SERIAL NO:

GROUP ART UNIT:

EXAMINER:

10

INTERNATIONAL APPLICATION NO: PCT/DE99/02721

INTERNATIONAL FILING DATE: 01 September 1999

INVENTION: "LASER RADIATION SOURCE"

Assistant Commissioner for Patents
Washington, D.C. 20231

15

Sir:

Please amend Figs. 1, 2, 3, 4, 4b, 4c, 8, 26,
28, 29, 32, 33, 35, 36, 37, 38, 39, 39a, and 41 as
indicated in red on the attached drawing copies.

Respectfully submitted,

20



(Reg.No. 27,841)

25

Brett A. Valiquet
Schiff Hardin & Waite
Patent Department
6600 Sears Tower
Chicago, Illinois 60606
(312) 258-5786
Attorneys for Applicant
CUSTOMER NO. 26574

C**CERTIFICATE OF MAILING BY "EXPRESS MAIL"****"Express Mail" Mailing Label Number EL655301655US****Date of Deposit: March 8, 2001****COPY**

I hereby certify that this CORRESPONDENCE IS BEING DEPOSITED WITH THE United States Postal "Express Mail Post Office To Addressee" SERVICE UNDER 37 CFR 1.10(c) on the date indicated above and is addressed to:

BOX PCT**Hon. Assistant Commissioner for Patents****Washington, D. C. 20231****Case Number: P01,0032****International Application No.
PCT/DE99/02721****International Filing Date
01 September 1999****Priority Date Claimed
08 September 1998****Title: "LASER RADIATION SOURCE"****Applicants: Heinrich JÜRGENSEN****Enclosed are the following documents:**

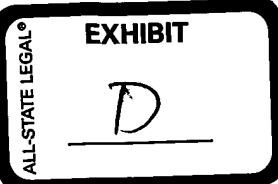
PTO 1390 in duplicate;
International Application as filed
English Translation
Substitute Specification
Marked up copy of Substitute Specification
Information Disclosure Statement, References, Search Report, Form 1449
Preliminary Amendment
Drawing Correction Letter
Thirty-Nine sheets of drawings
Translation of Drawings
Unexecuted Declaration
\$1894.00
Postcard.

**Signature of Person Mailing Documents and Fee****BEST AVAILABLE COPY**



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF
United States Patent and Trademark
Address: COMMISSIONER OF PATENTS
Washington, D.C. 20231
www.uspto.gov



APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/786,742	09/14/2001	Heinrich Jurgensen	P010032	5122

26574 7590 01/30/2003

SCHIFF HARDIN & WAITE
6600 SEARS TOWER
233 S WACKER DR
CHICAGO, IL 60606-6473

EXAMINER

MENEFEE, JAMES A

ART UNIT	PAPER NUMBER
----------	--------------

2828

DATE MAILED: 01/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

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FEB 05 2003

SCHIFF HARDIN & WAITE
U.S. PATENT DEPT.

Office Action Summary

Application No.

09/786,742

Applicant(s)

JURGENSEN, HEINRICH

Examiner

James A. Menefee

Art Unit

2828

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 337-407 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 337-407 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Paul IP
PAUL IP
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 September 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 14 September 2001 is: a) ☒ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3. 6) ☐ Other:

Art Unit: 2828

DETAILED ACTION

Response to Amendment

In response to the two preliminary amendments, the second substitute specification and abstract has been entered. Claims 1-336 are cancelled and claims 337-407 are added. Claims 337-407 are currently pending.

Drawings

The proposed drawing correction and/or the proposed substitute sheets of drawings, filed on 14 September 2001 have been approved. The substitute drawing pages incorporating these changes were received on 14 September 2002. These drawings are acceptable except as follows:

The drawings are objected to because of the following:

In Fig. 1, "radiation" is misspelled.

In Fig. *b* "coolant" is misspelled.

Figures 2 and 2a should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g).

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Objections

Claim 395 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the



UNITED STATES PATENT AND TRADEMARK OFFICE

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EXHIBIT
E

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/786,742	09/14/2001	Heinrich Jurgensen	P010032	5122

26574 7590 08/13/2003

SCHIFF HARDIN & WAITE
6600 SEARS TOWER
233 S WACKER DR
CHICAGO, IL 60606-6473

EXAMINER

MENEFEE, JAMES A

ART UNIT PAPER NUMBER

2828

DATE MAILED: 08/13/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

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AUG 19 2003

SCHIFF HARDIN & WAITE
U.S. PATENT DEPT.

Office Action Summary

Application No.

09/786,742

Applicant(s)

JURGENSEN, HEINRICH

Examiner

James A. Menefee

Art Unit

2828

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Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

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- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 June 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 337-421 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 337-421 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
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Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
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- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.

- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Art Unit: 2828

DETAILED ACTION

Response to Amendment

In response to the amendment filed 30 June 2003, claims 337, 343, 383, 386, 403, and 406-407 are amended, and claims 408-421 added. Claims 337-421 are currently pending.

Drawings

The corrected or substitute drawings were received on 30 June 2003. These drawings are acceptable.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 409-410 and 417-419 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 409 recites the limitation "said processing surface" in line 7. Claim 417 recites the same limitation in lines 7 and 10. There is insufficient antecedent basis for this limitation in these claims. Further, the term "The" at the start of claim 417 should be changed to "A".

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

BEST AVAILABLE COPY

UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF CORRECTION

PATENT NO. : 6,888,853 B1

DATED : May 3, 2005

INVENTOR(S) : Heinrich Jürgensen

It is certified that errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

In the Patent cover sheet at col. 1 after "References Cited" through col. 2 and before "Primary Examiner – Don Wong" substitute the following to correct errors in the listing of references:

--U.S. PATENT DOCUMENTS

3,931,458 A *	1/1976	Dini.....	358/3.29
RE32,139 E *	5/1986	Taudt et al.....	358/524
4,729,037 A *	3/1988	Doelves.....	358/3.29
5,084,882 A	1/1992	Hughes.....	372/6
5,202,893 A *	4/1993	Kubota et al.	372/34
5,337,325 A	8/1994	Hwang.....	372/36
5,363,233 A *	11/1994	Pernick.....	359/316
5,369,661 A *	11/1994	Yamaguchi et al.	372/69
5,373,526 A *	12/1994	Lan et al.	372/69
5,396,506 A	3/1995	Ball.....	372/6
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5,430,816 A	7/1995	Furuya et al.	385/33
5,654,125 A	8/1997	Fan et al.	430/306
5,694,408 A	12/1997	Bott et al.	372/6
5,719,009 A *	2/1998	Fan.....	430/306
5,760,880 A	6/1998	Fan et al.	355/67
5,780,200 A *	7/1998	Kitaguchi et al.	430/270.1
5,798,202 A *	8/1998	Cushner et al.	430/306
5,829,881 A *	11/1998	Furlani et al.	384/42
5,867,305 A *	2/1999	Waarts et al.	359/341
5,900,109 A *	5/1999	Sanders et al.	156/552
5,949,466 A *	9/1999	Kerr et al.	347/213
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6,283,022 B1 *	9/2001	Kamen et al.	101/129

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(Page 2)

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Proceedings Vol 3097, 1997
1998 Semiconductor Laser Product Catalog-SDL Copyright 1997 SDL, Inc. pp. 40-45

* cited by examiner

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(Page 3)

For drawing Figures 1, 4, 4b, 4c, 8, 29, 32, 33, 35, 36, 37 and 41, legends are added as shown on the attached drawing sheets.

In the drawing sheets 1 through 39, replace drawing sheets 1, 3, 5, 6, 11, 24, 25, 26, 28, 29, 31, and 34 with the attached some numbered drawing sheets. This corrects errors in the legends.

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25 2008



US00688853B1

(12) **United States Patent**
Jürgensen

(10) Patent No.: **US 6,888,853 B1**
(45) Date of Patent: **May 3, 2005**

(54) **LASER RADIATION SOURCE**

(75) Inventor: **Heinrich Jürgensen, Raisdorf (DE)**

(73) Assignee: **Hell Gravure Systems GmbH, Kiel (DE)**

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **09/786,742**

(22) PCT Filed: **Sep. 1, 1999**

(86) PCT No.: **PCT/DE99/02721**

§ 371 (c)(1),
(2), (4) Date: **Sep. 14, 2001**

(87) PCT Pub. No.: **WO00/13839**

PCT Pub. Date: **Mar. 16, 2000**

(30) **Foreign Application Priority Data**

Sep. 8, 1998 (DE) 198 40 926

(51) Int. Cl.⁷ **H01S 3/067; B41F 9/00; G03F 7/00; B41J 2/435**

(52) U.S. Cl. **372/6; 372/9; 372/24; 101/150; 101/153; 430/269; 430/300; 430/307; 347/224; 347/233; 347/238; 347/241**

(58) Field of Search **372/6, 9, 24, 26, 372/69; 101/150, 153; 430/269, 300, 307; 347/224, 233, 238, 241**

(56) **References Cited**

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5,900,109 A * 5/1999 Sanders et al. 156/552
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* cited by examiner

Primary Examiner—Don Wong

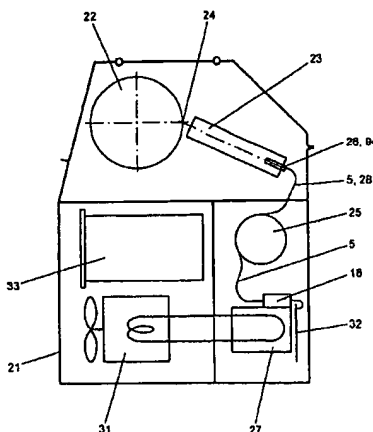
Assistant Examiner—James Menefee

(74) Attorney, Agent, or Firm—Schiff Hardin LLP

(57) **ABSTRACT**

A system and method for selectively process material on a processing surface of a printing form to create a fine structure or pattern for images or text. At least one fiber laser comprising a pump source and a laser fiber is provided. A laser gun is mounted adjacent the printing form and has at least a focusing optics. The fiber laser outputs a laser beam which is diffraction-limited to permit the focusing optics to focus the laser beam onto the processing surface of the printing form as a spot having a spot size sufficiently small to process the processing surface to create the fine structure or pattern images or text.

296 Claims, 39 Drawing Sheets



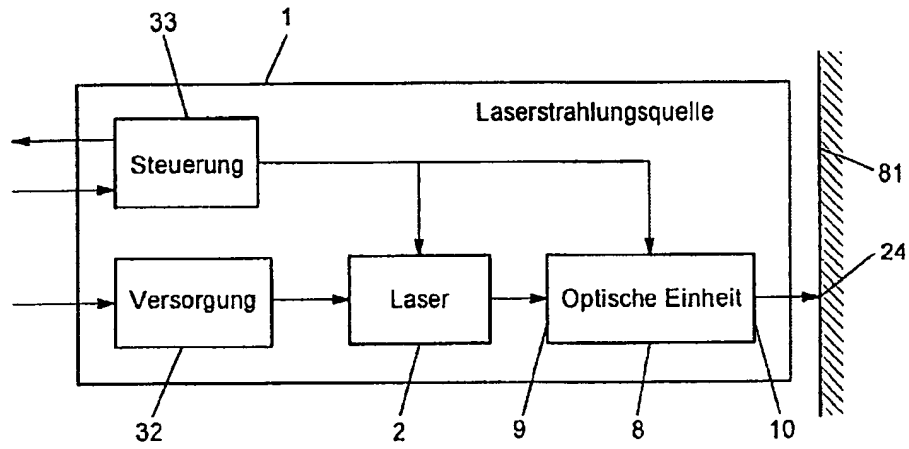


Fig. 1

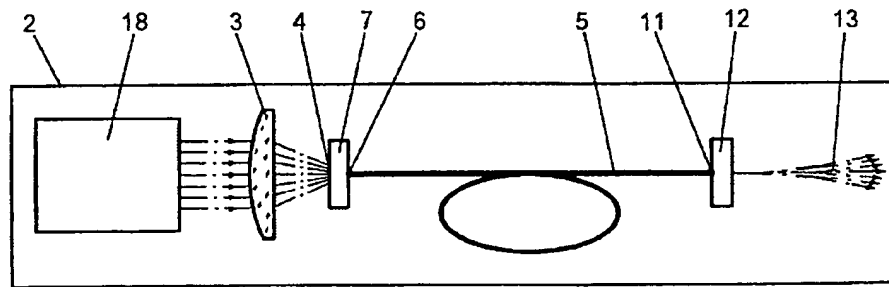


Fig. 2

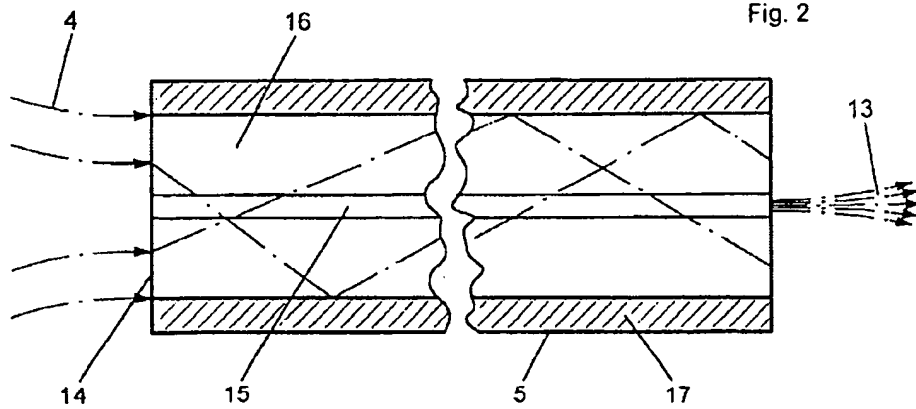


Fig. 2a

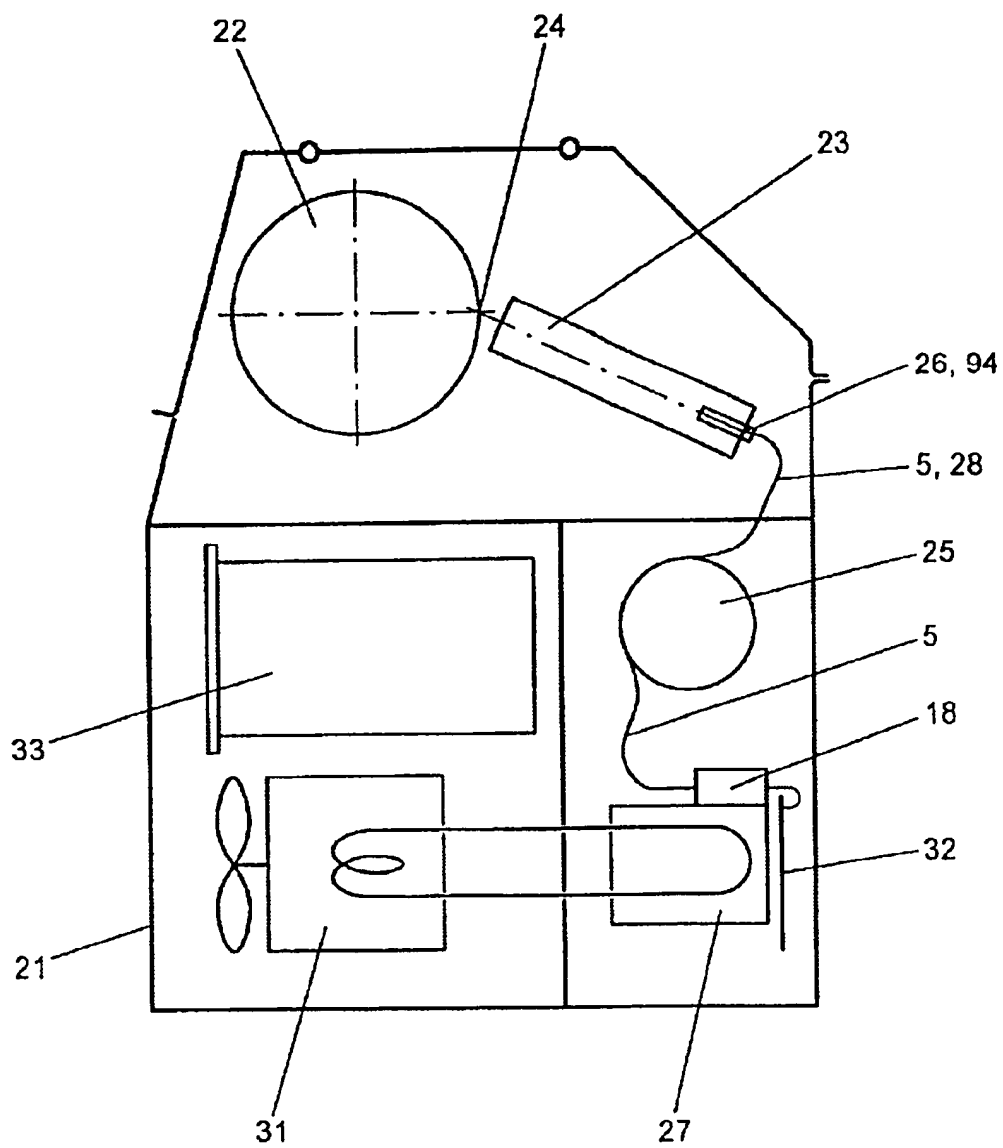


Fig. 3

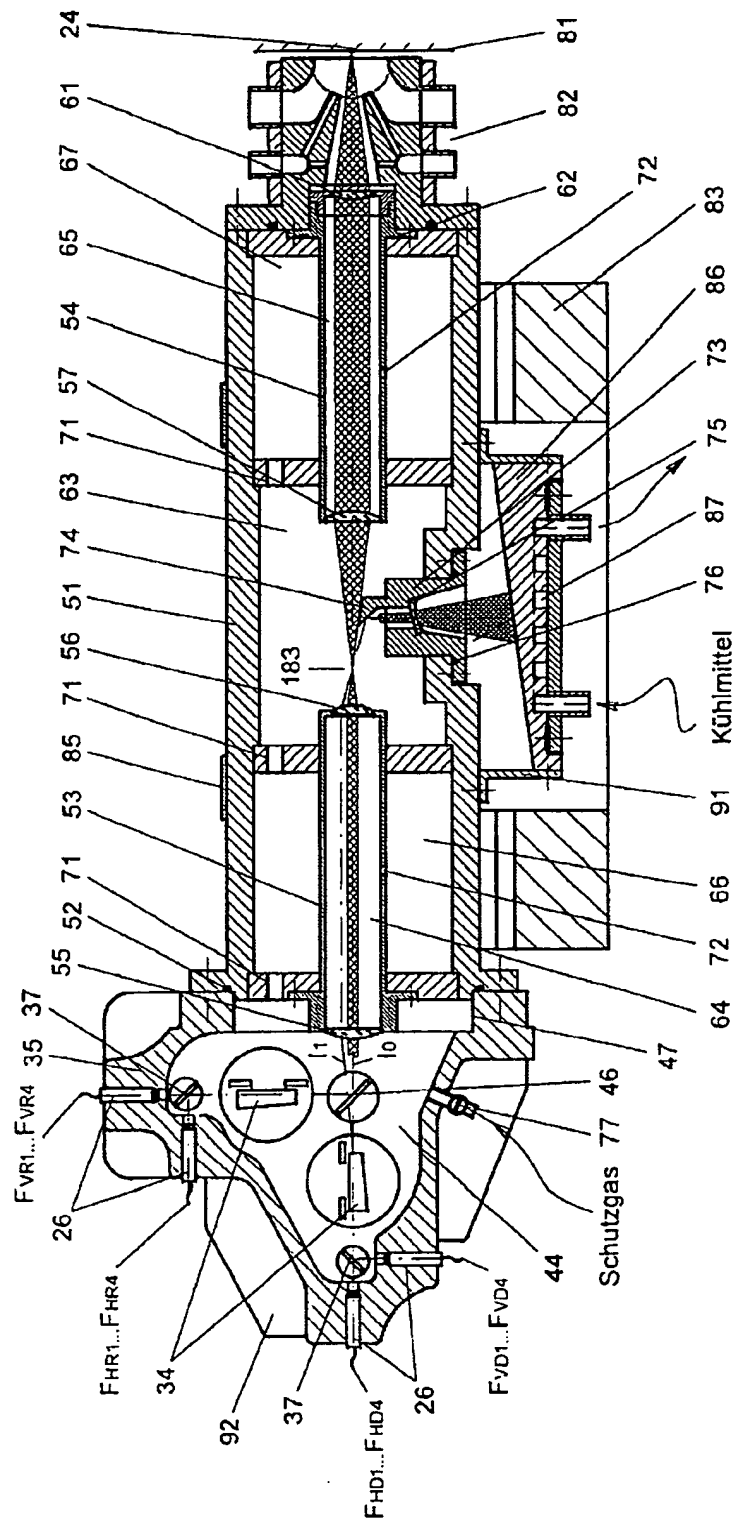


Fig. 4

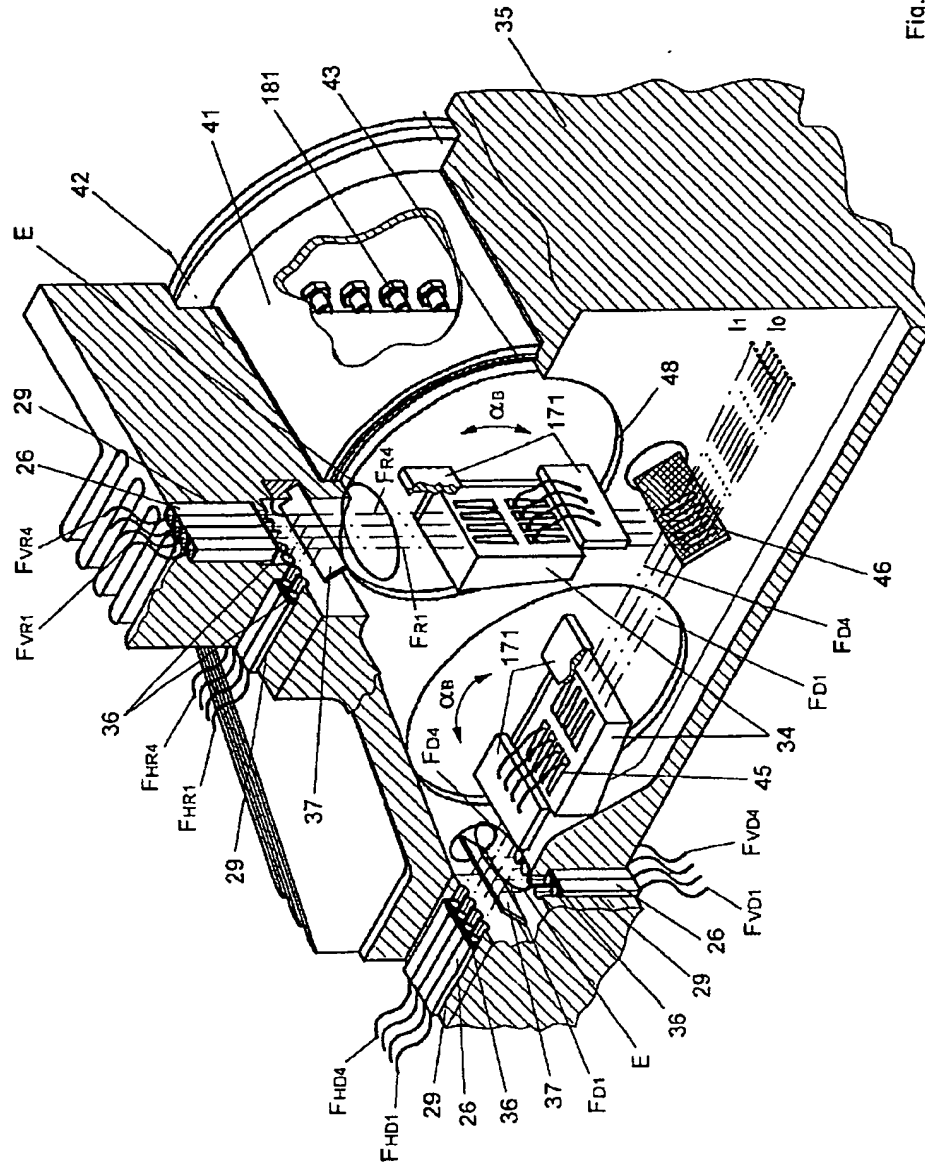
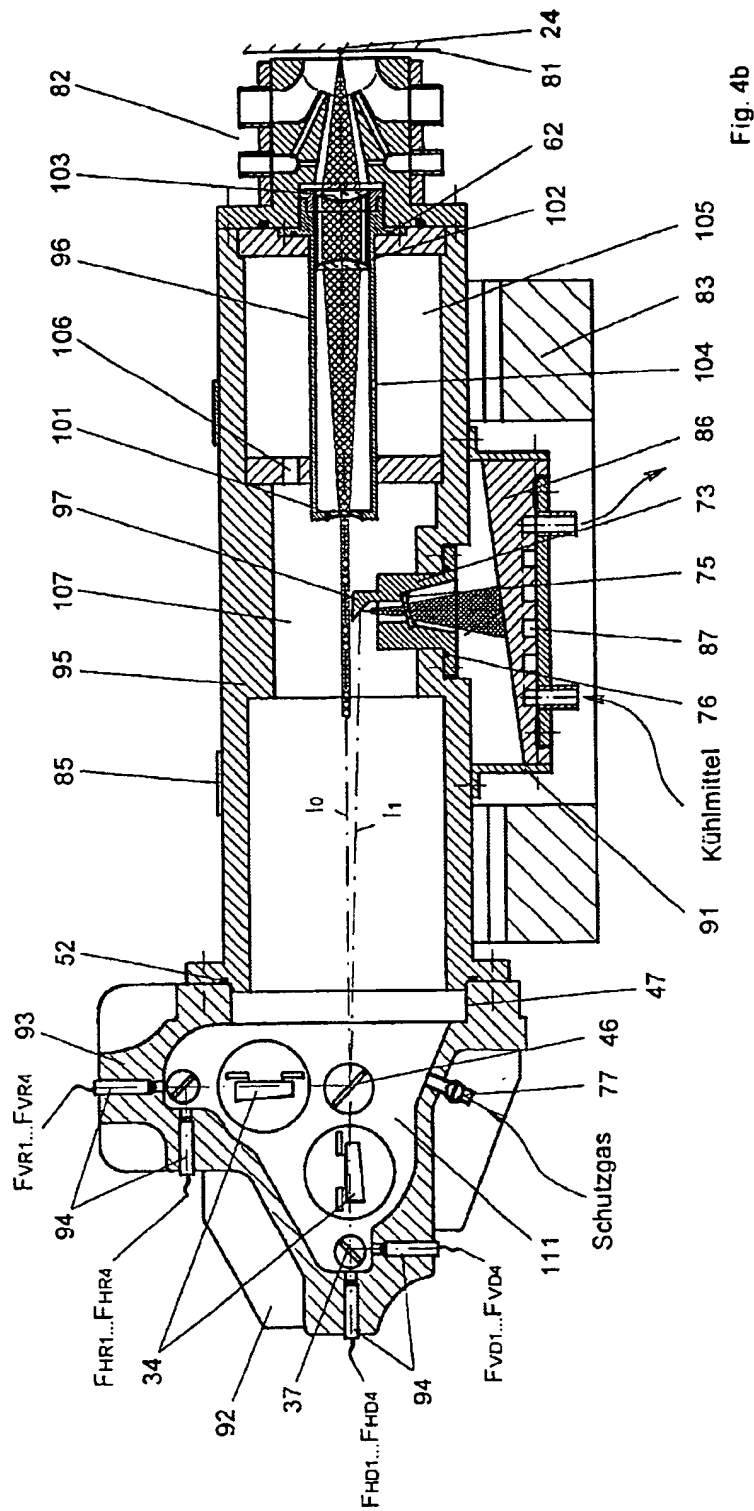


Fig. 4a



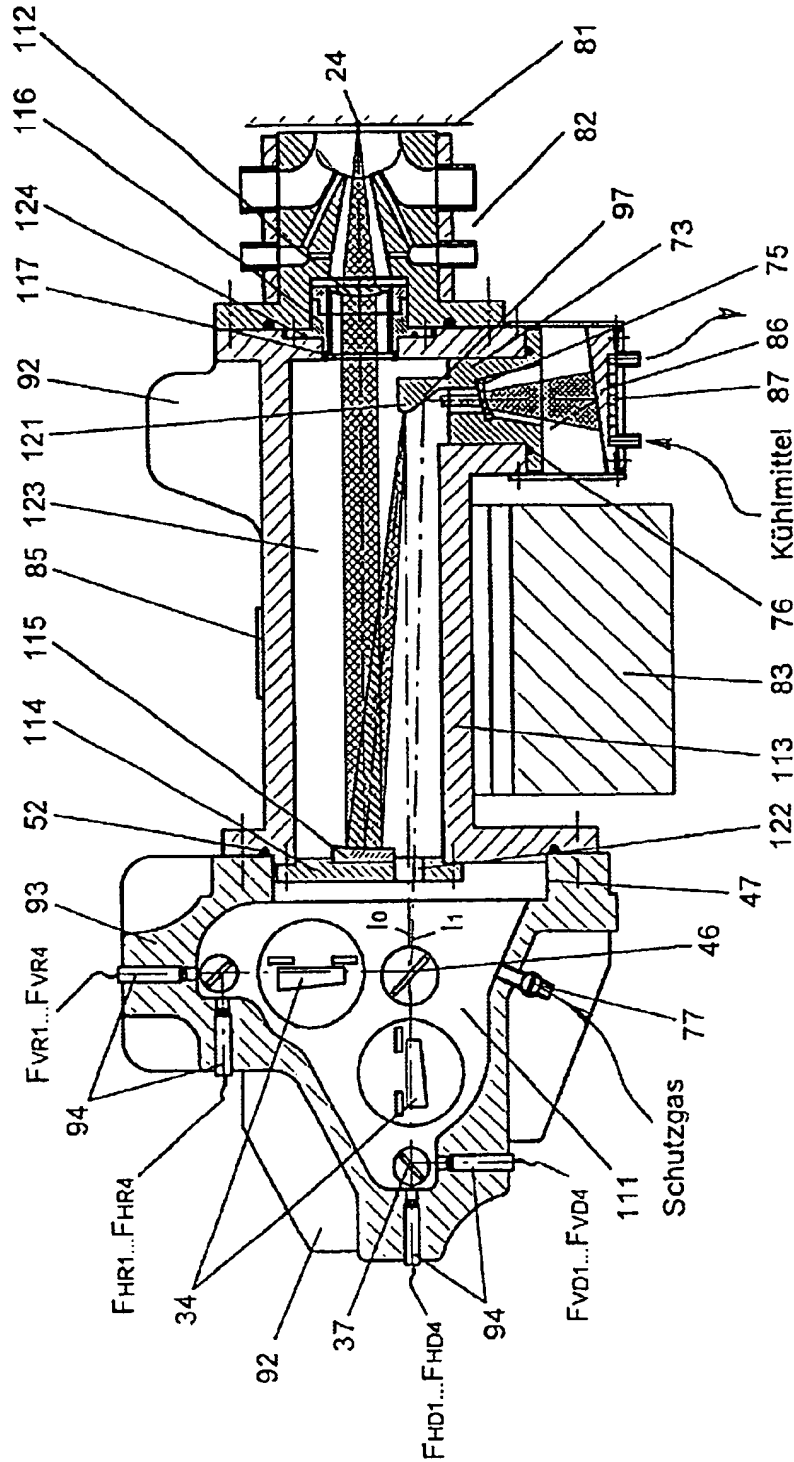


Fig. 4c

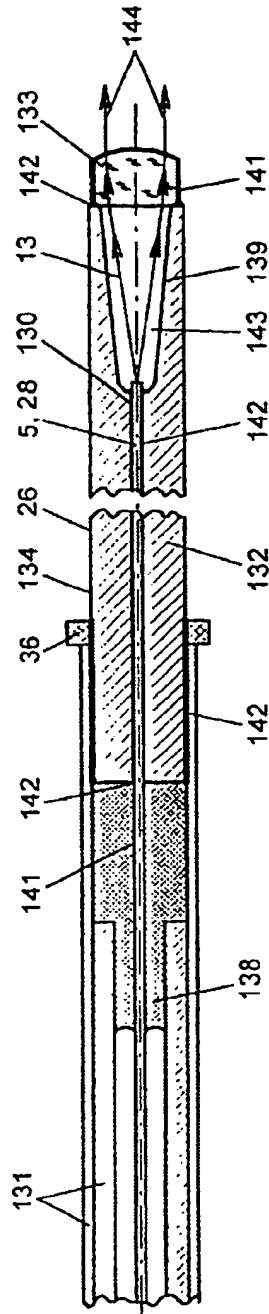


Fig. 5

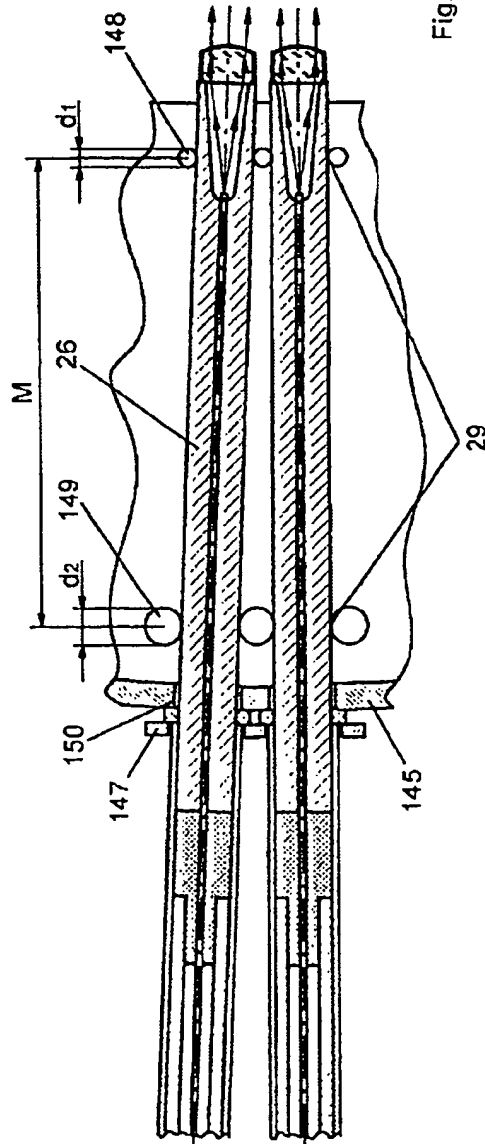
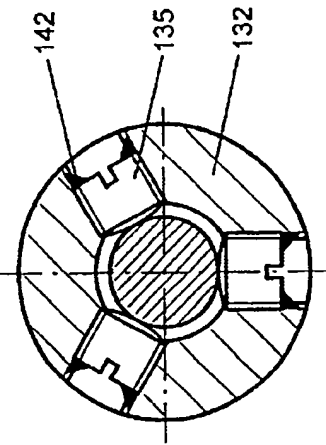
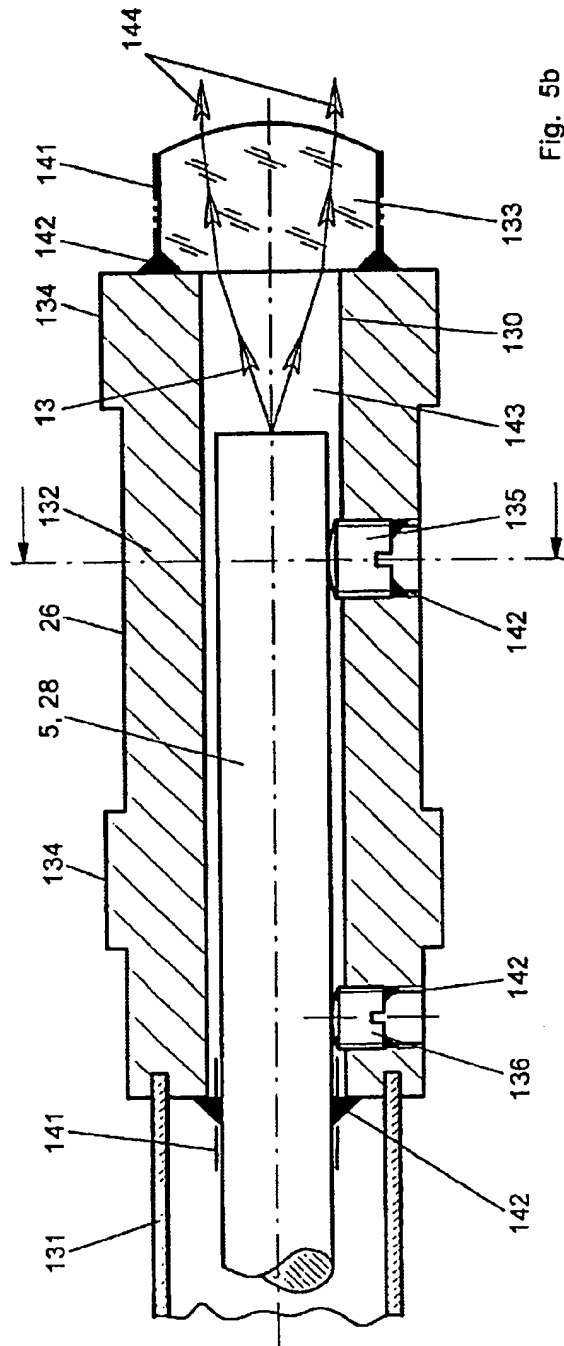


Fig. 5a



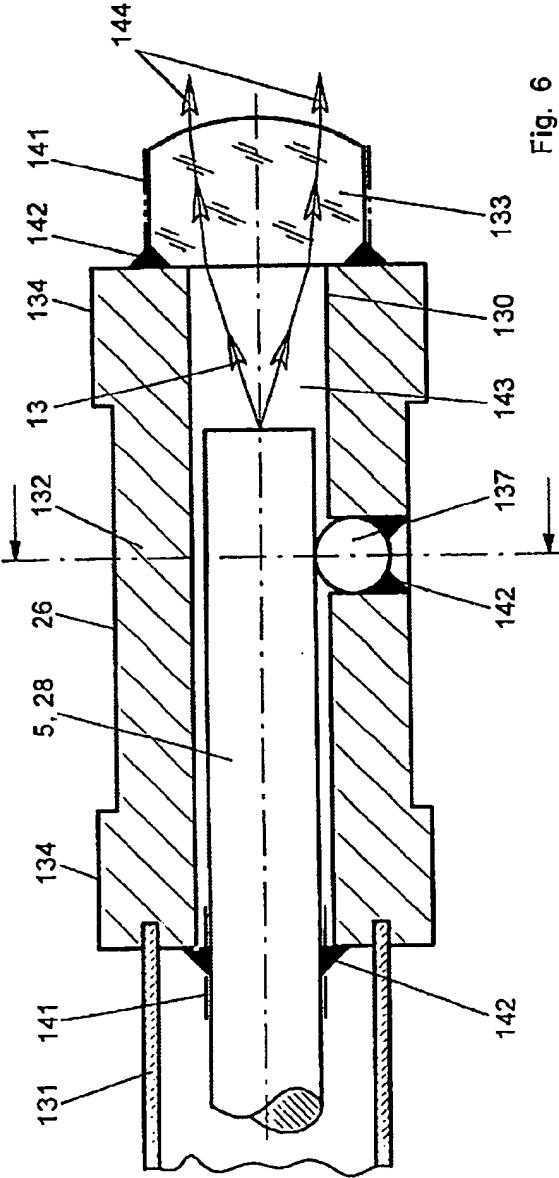


Fig. 6

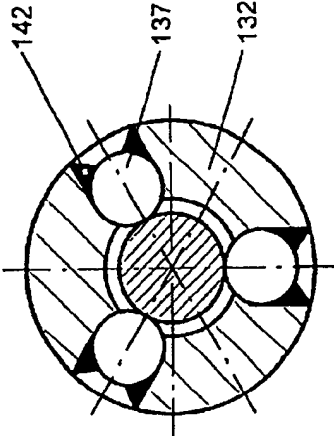
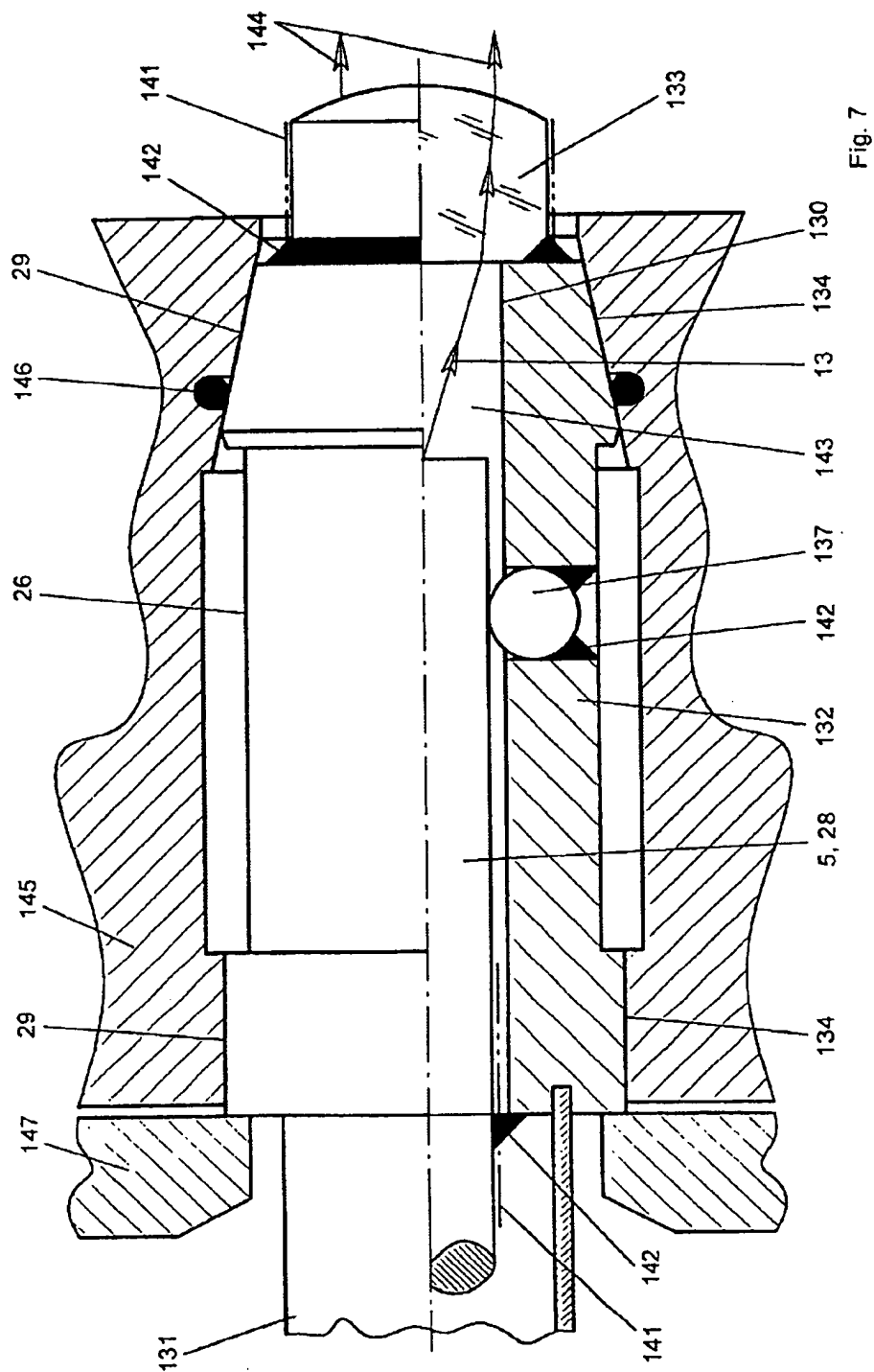


Fig. 6a



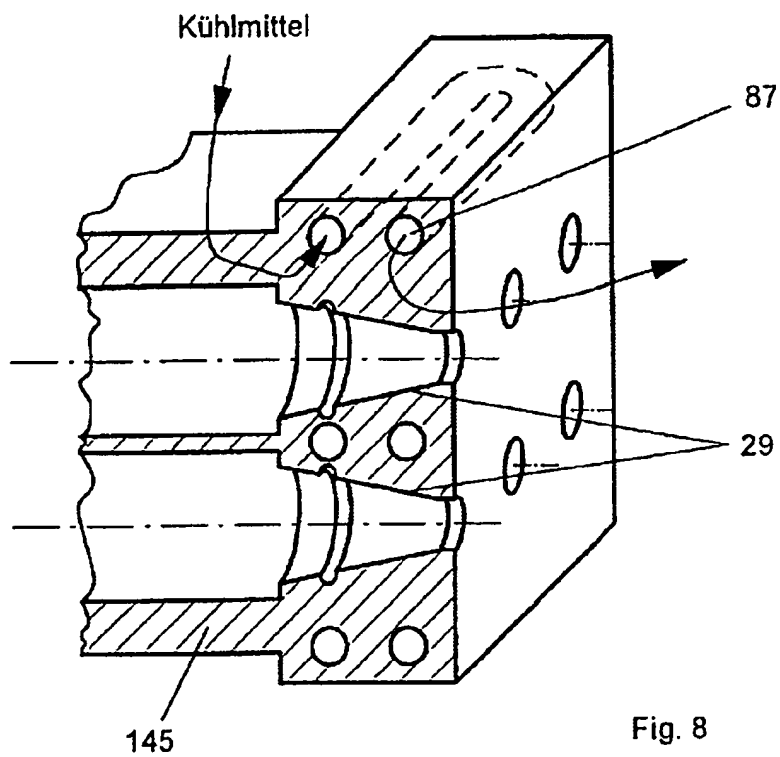


Fig. 8

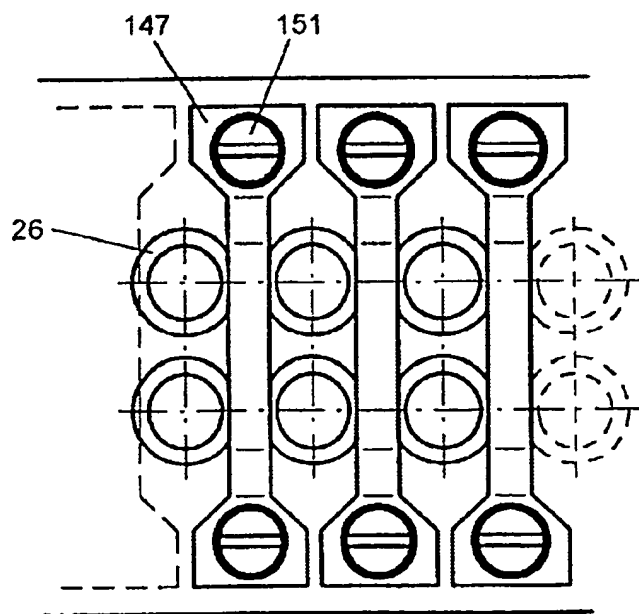


Fig. 8a

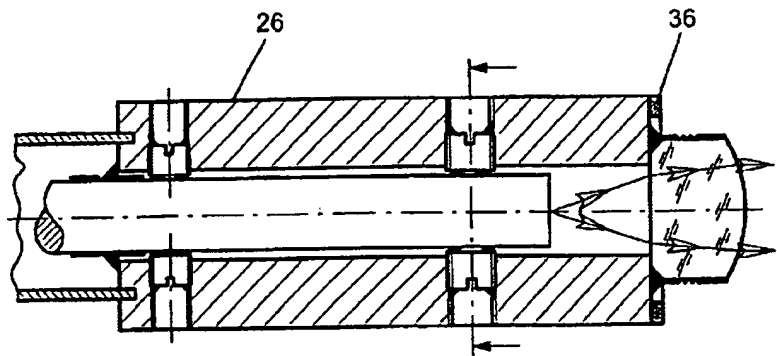


Fig. 9

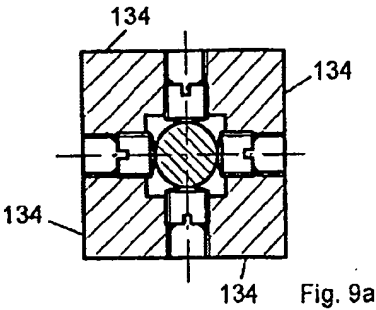


Fig. 9a

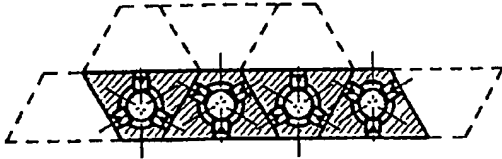


Fig. 11

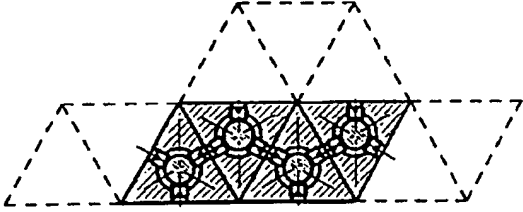


Fig. 11a

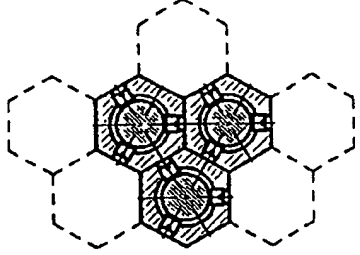
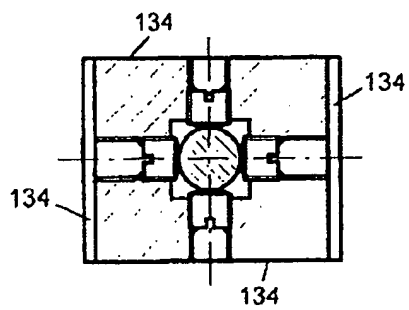
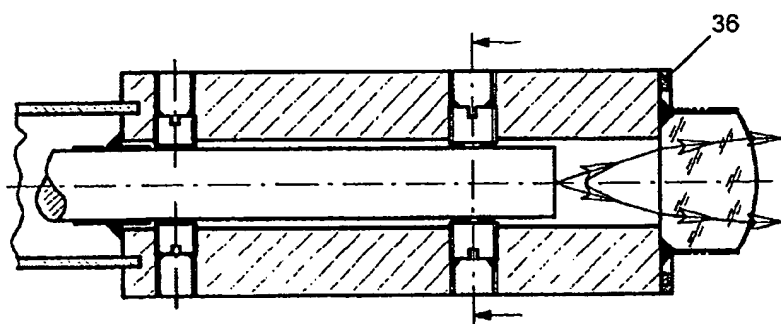
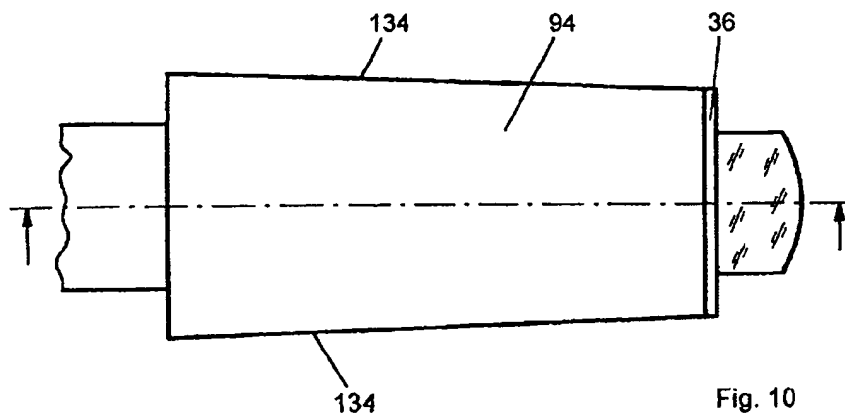


Fig. 12



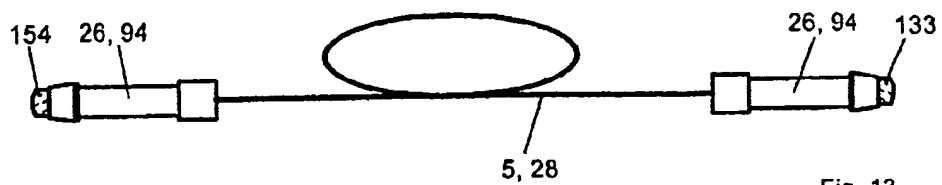


Fig. 13

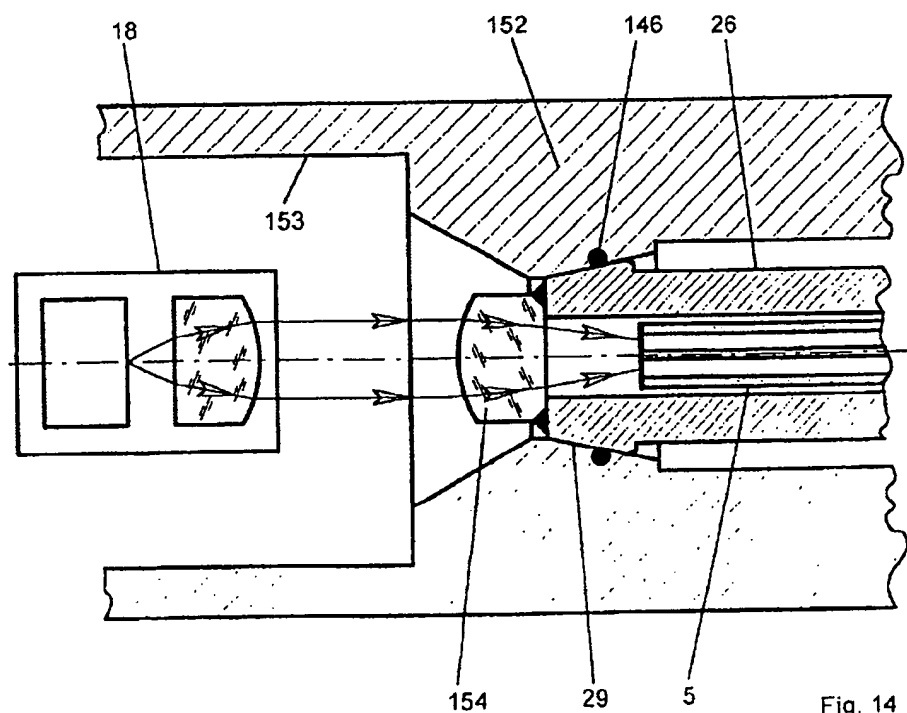


Fig. 14

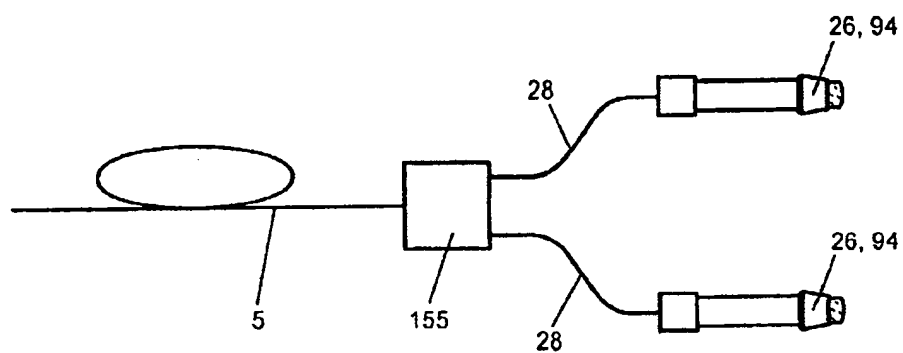


Fig. 15

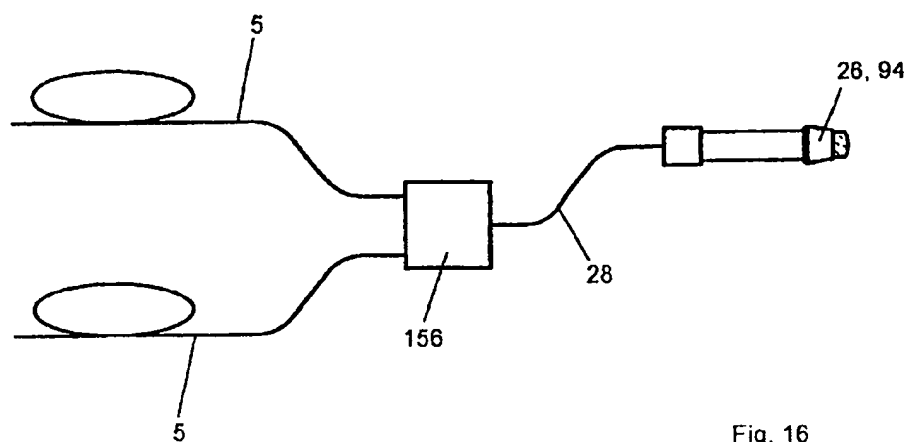


Fig. 16

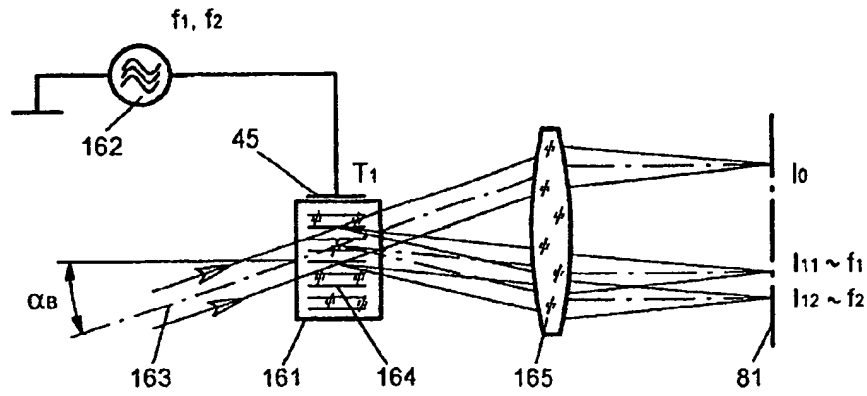


Fig. 17

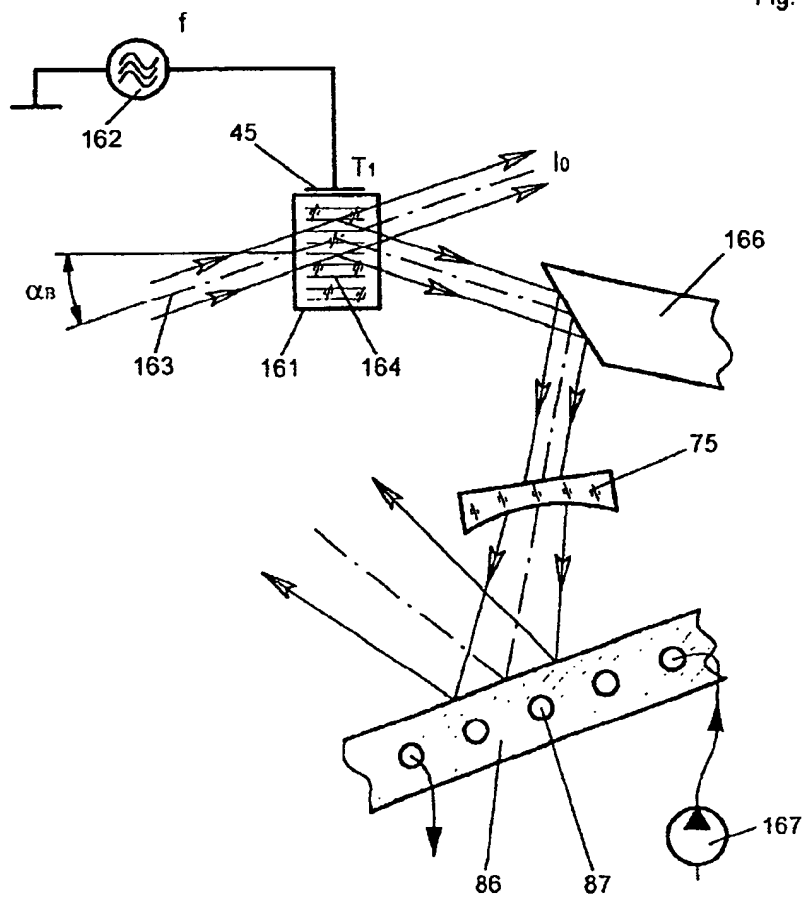


Fig. 18

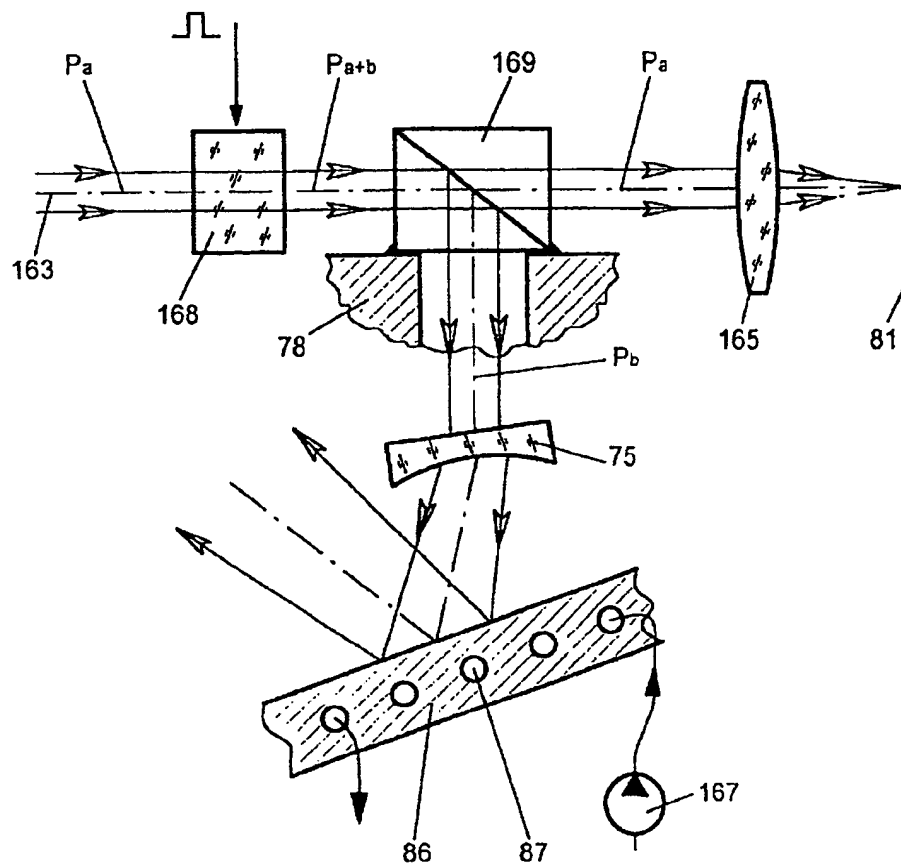
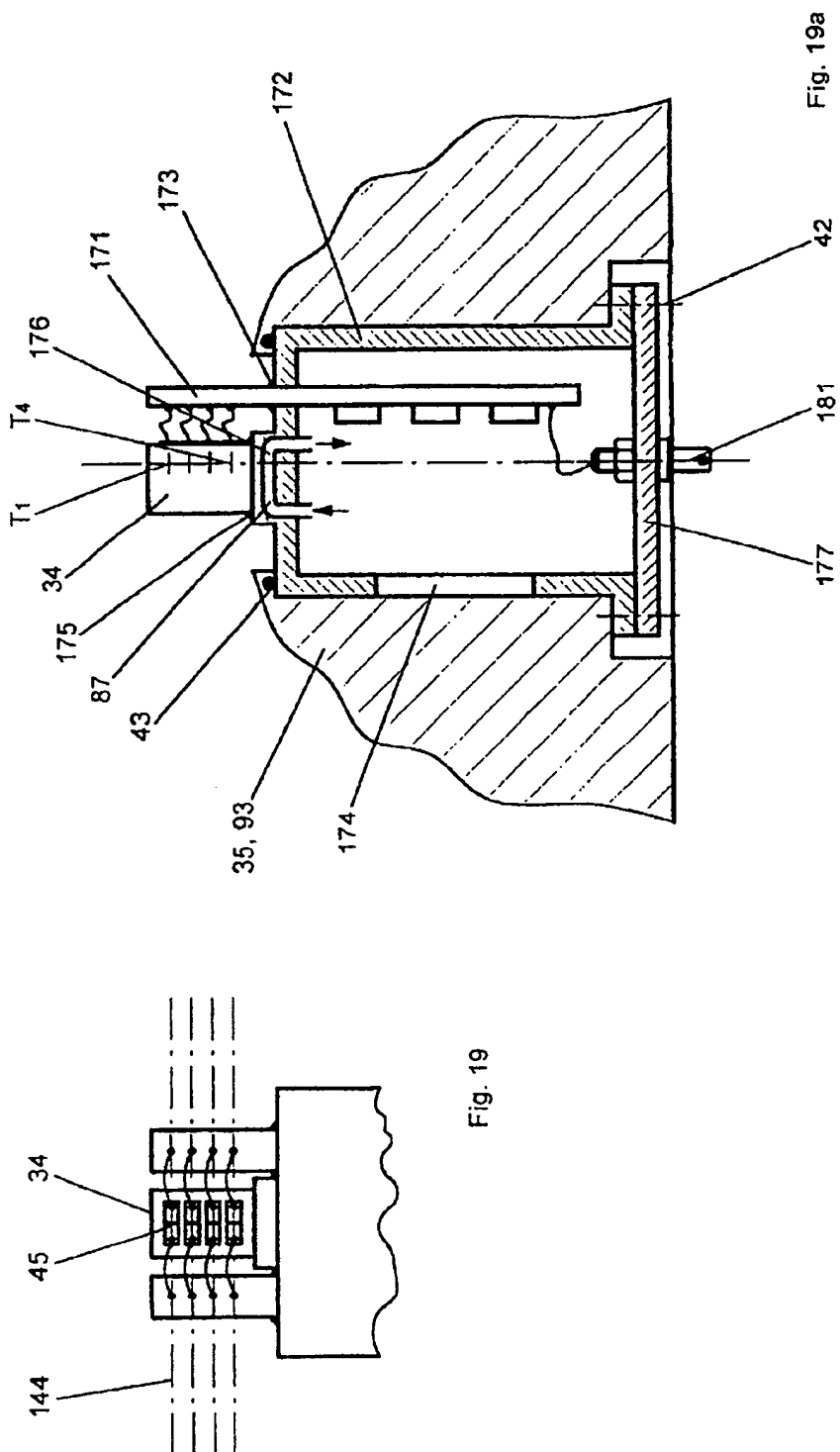


Fig. 18a



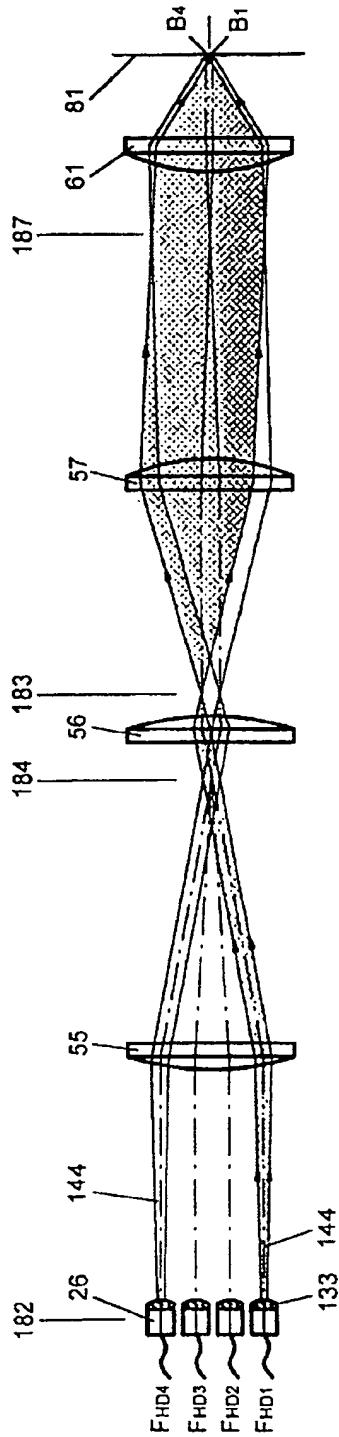


Fig. 20

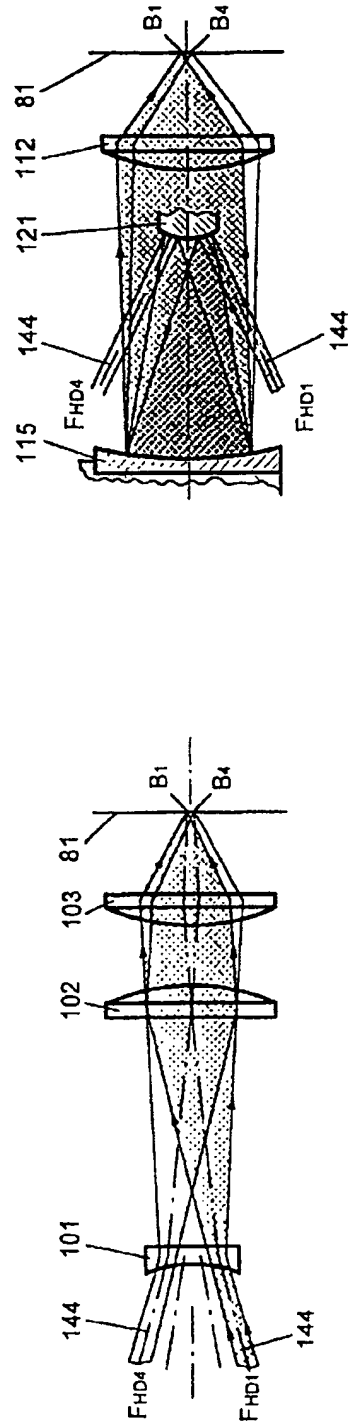


Fig. 21

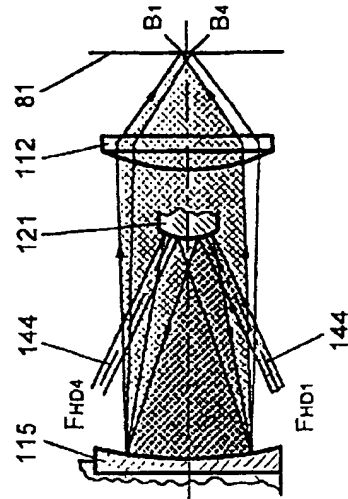


Fig. 22

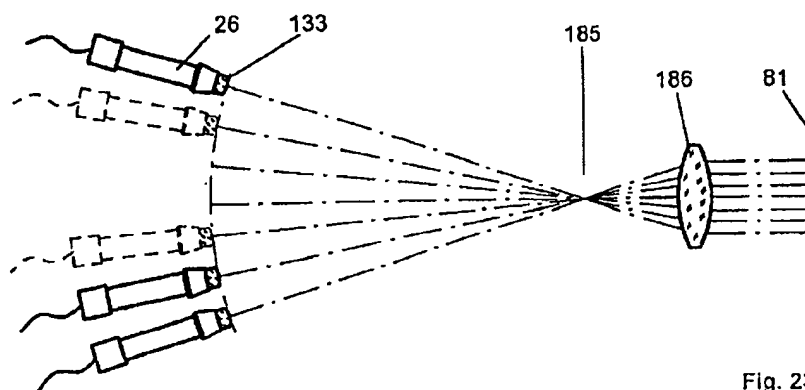


Fig. 23

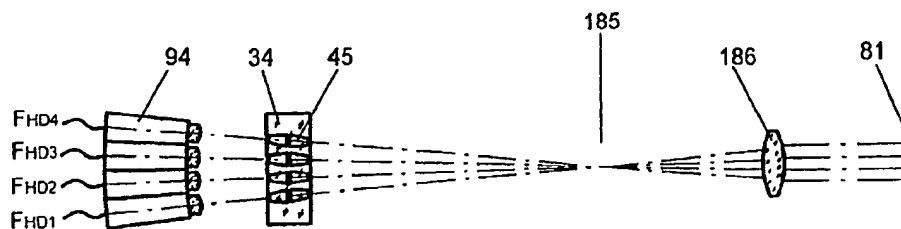


Fig. 24

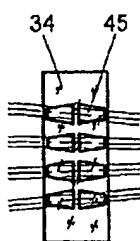


Fig. 24a

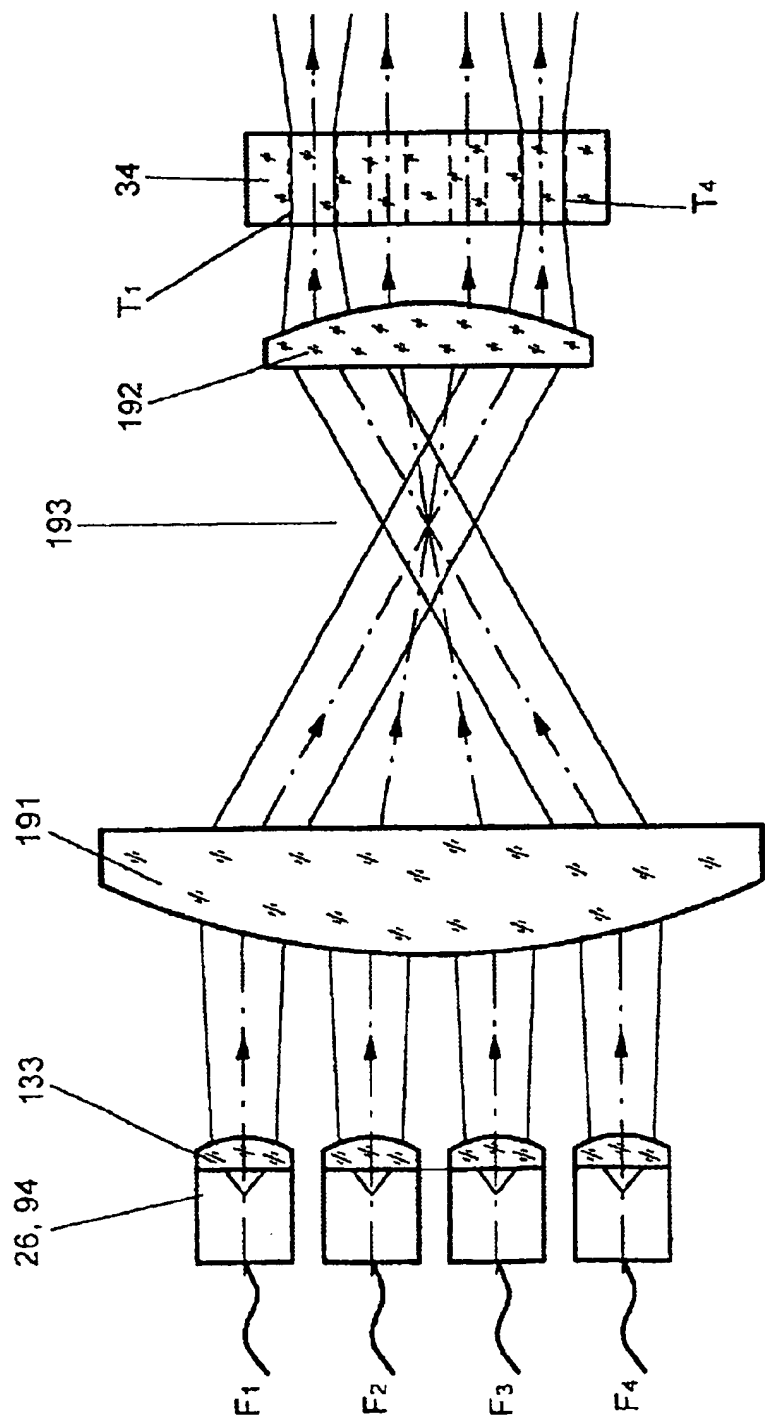
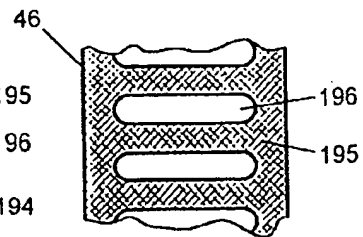
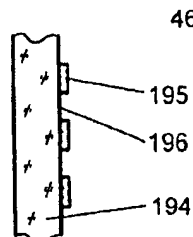
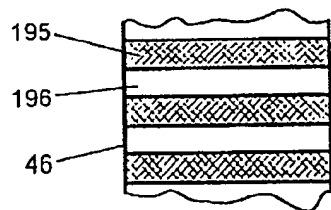
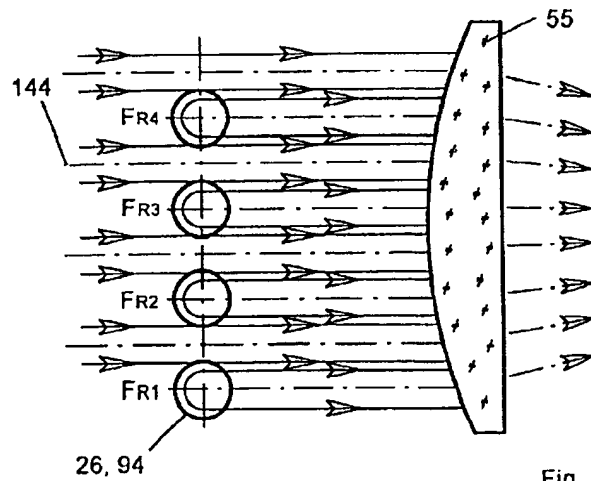
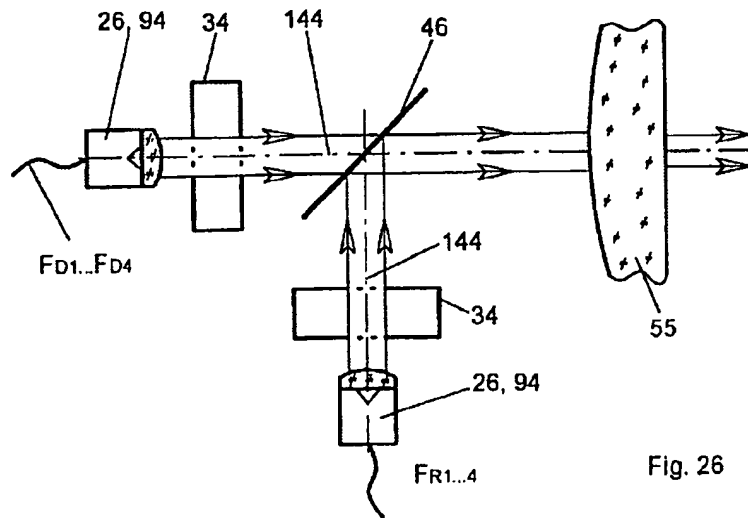


Fig. 25



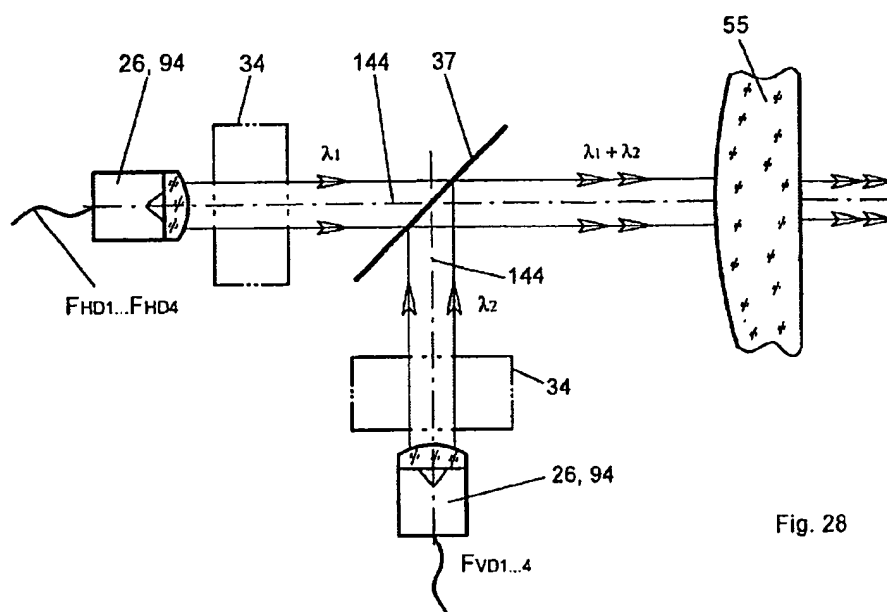


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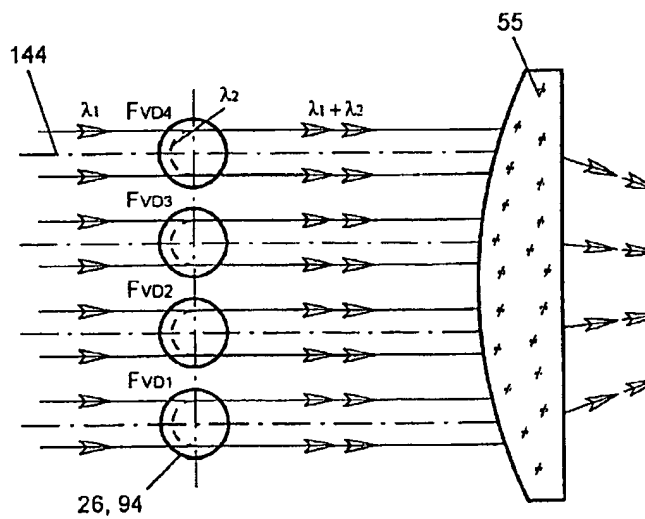


Fig. 28a

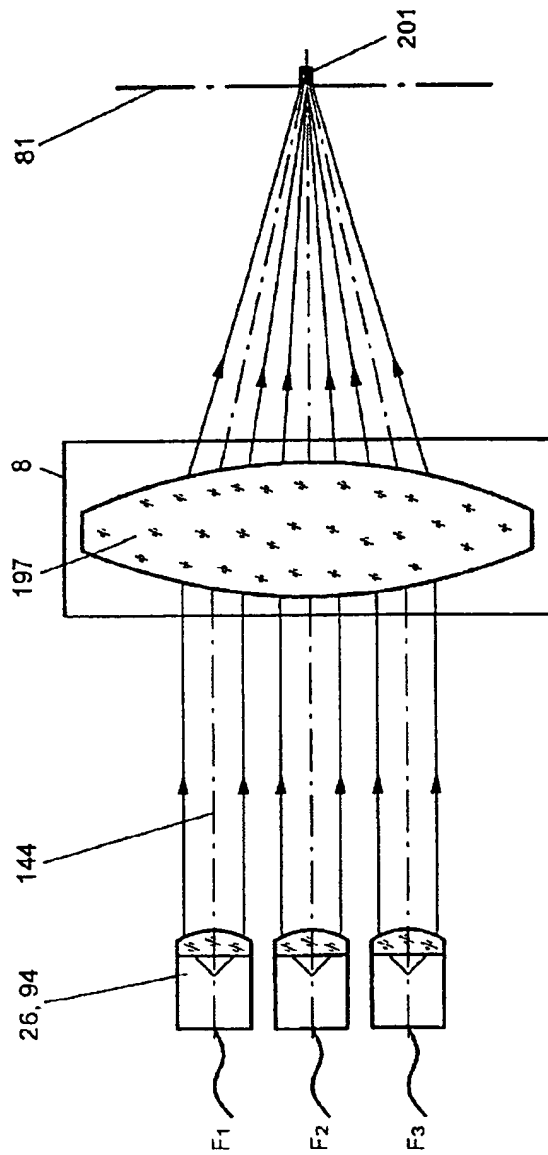


Fig. 31

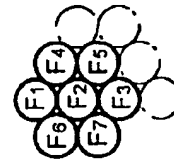


Fig. 30

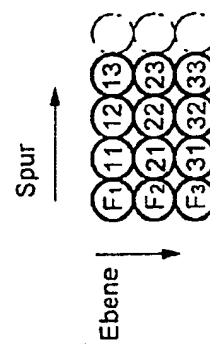
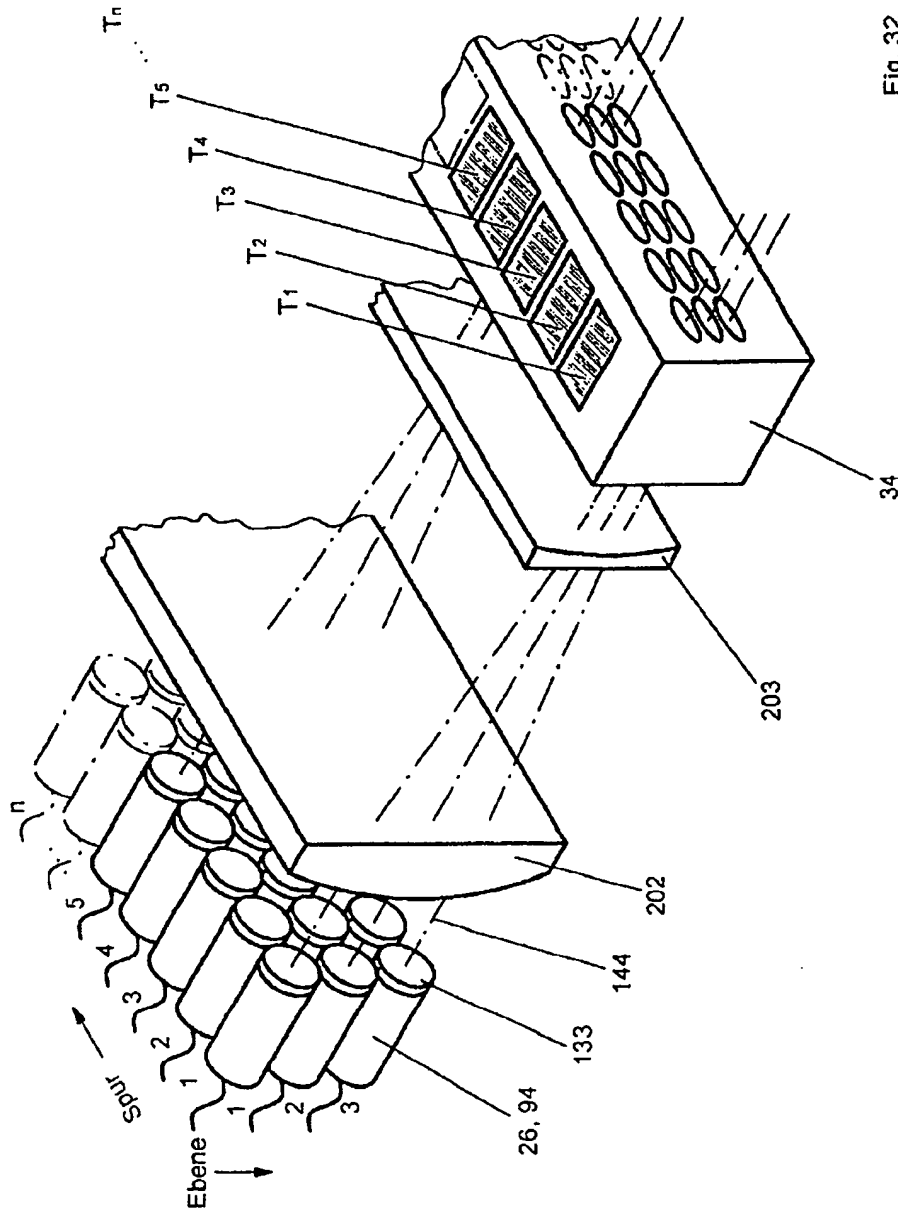


Fig. 29



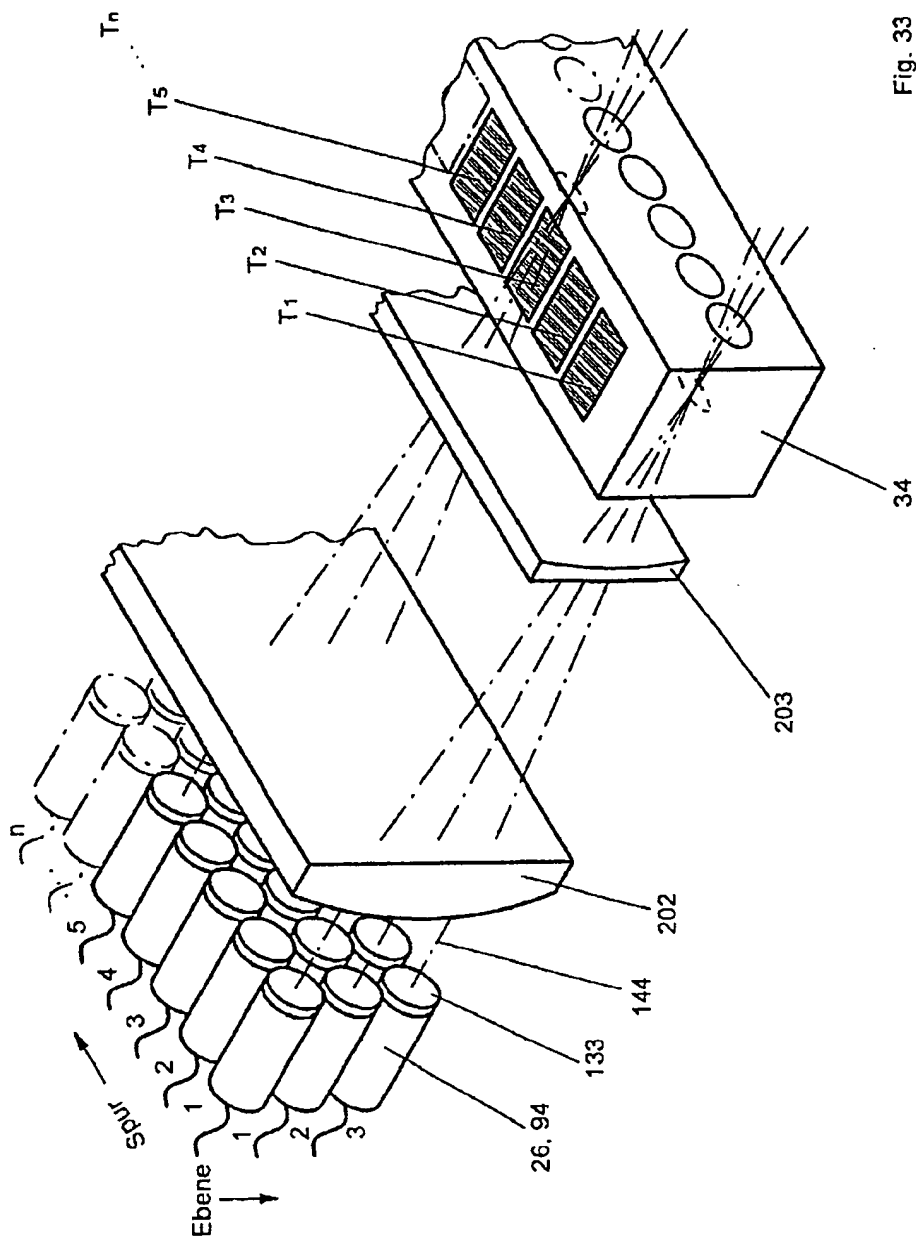


Fig. 33

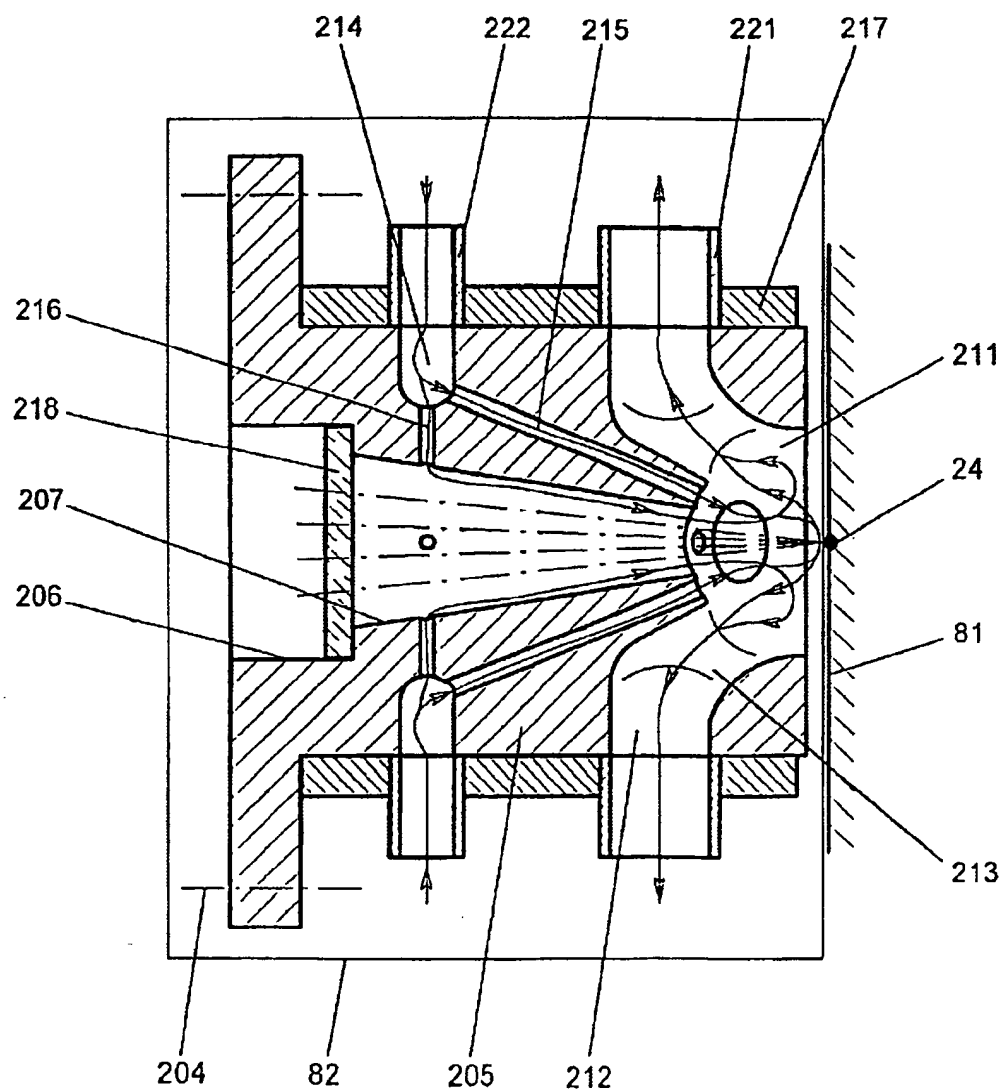
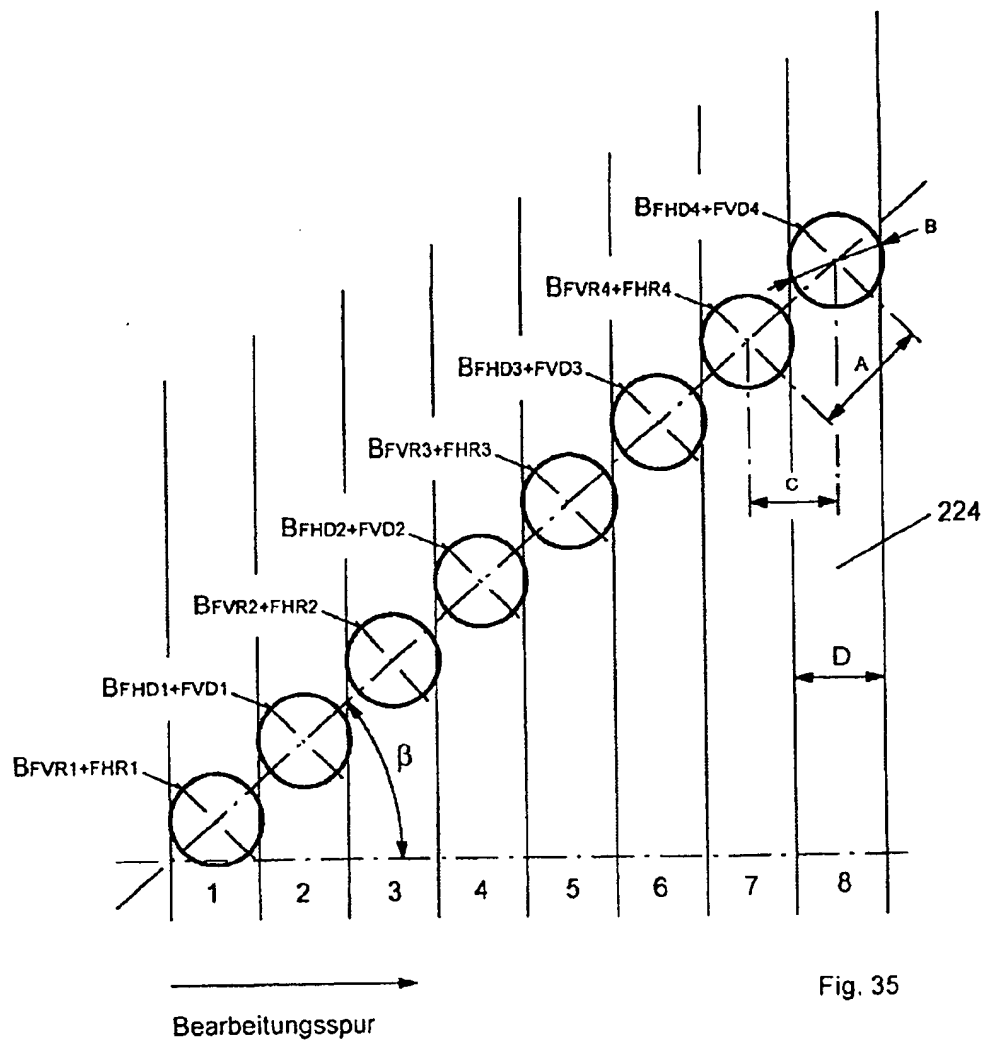


Fig. 34



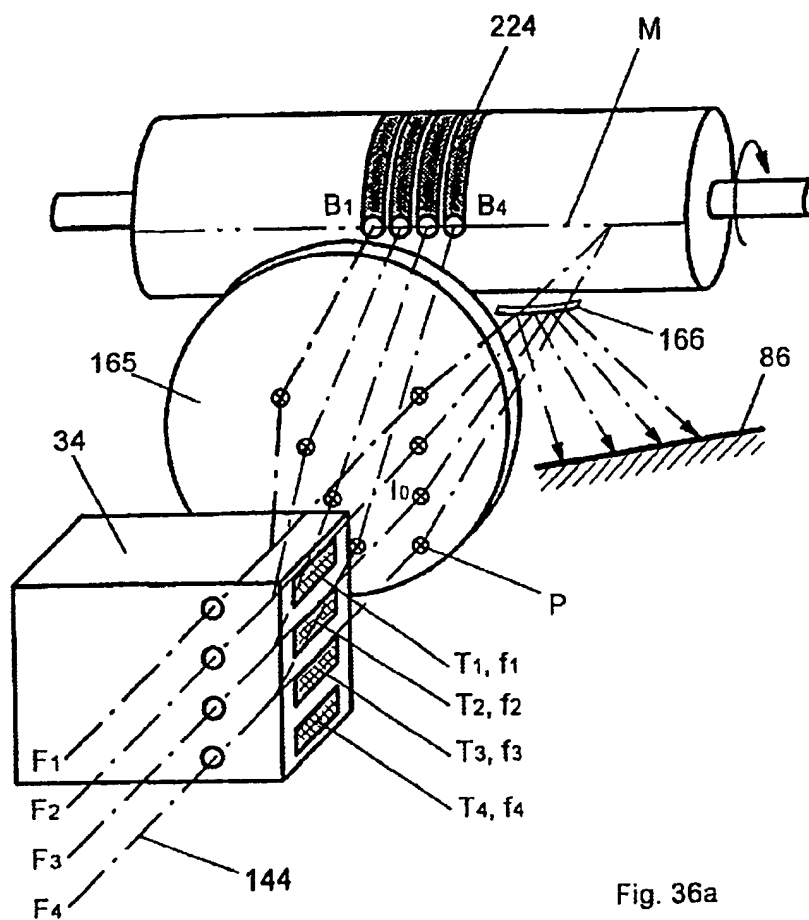


Fig. 36a

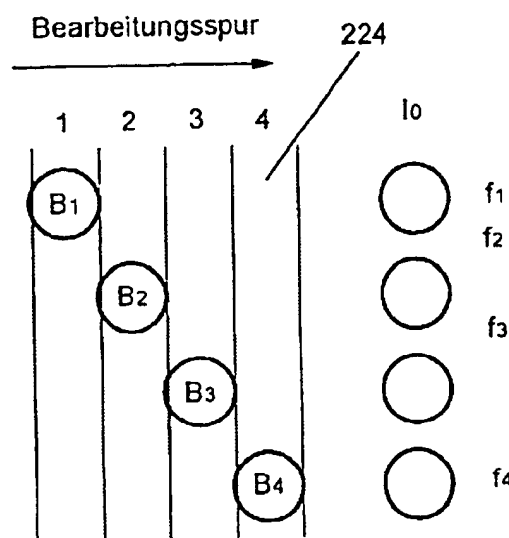


Fig. 36

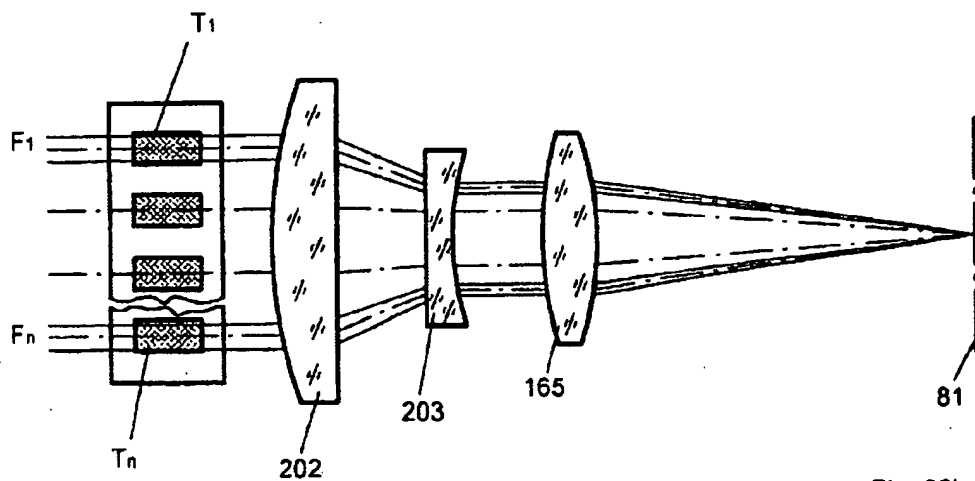


Fig. 36b

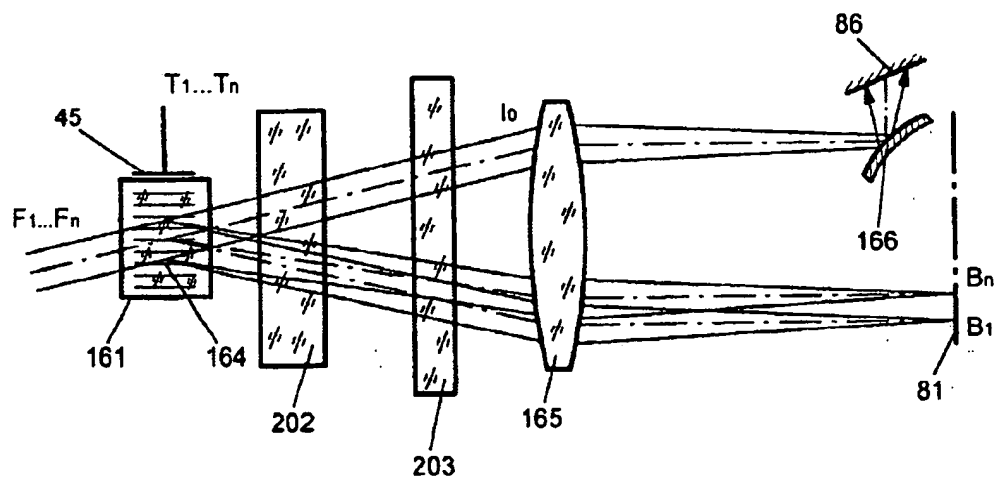


Fig. 36c

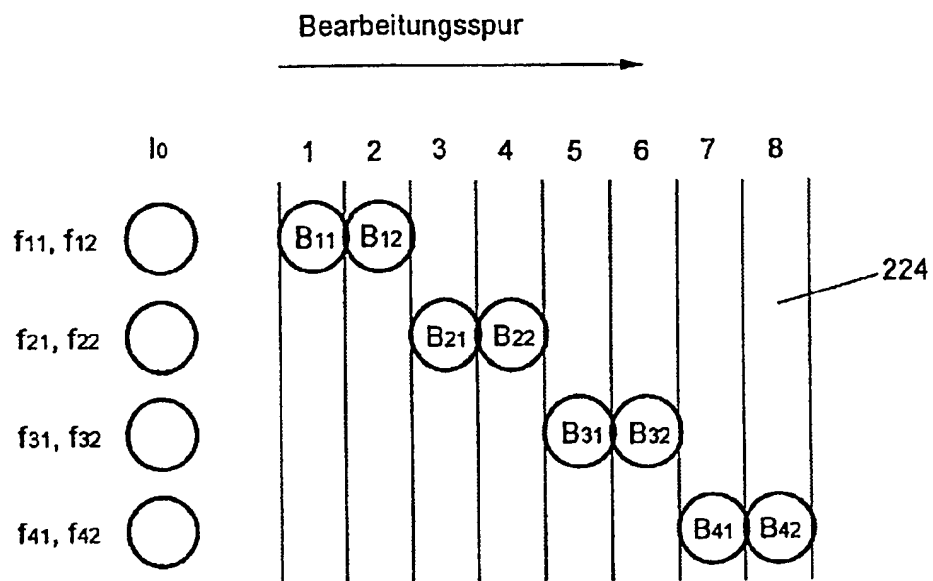


Fig. 37

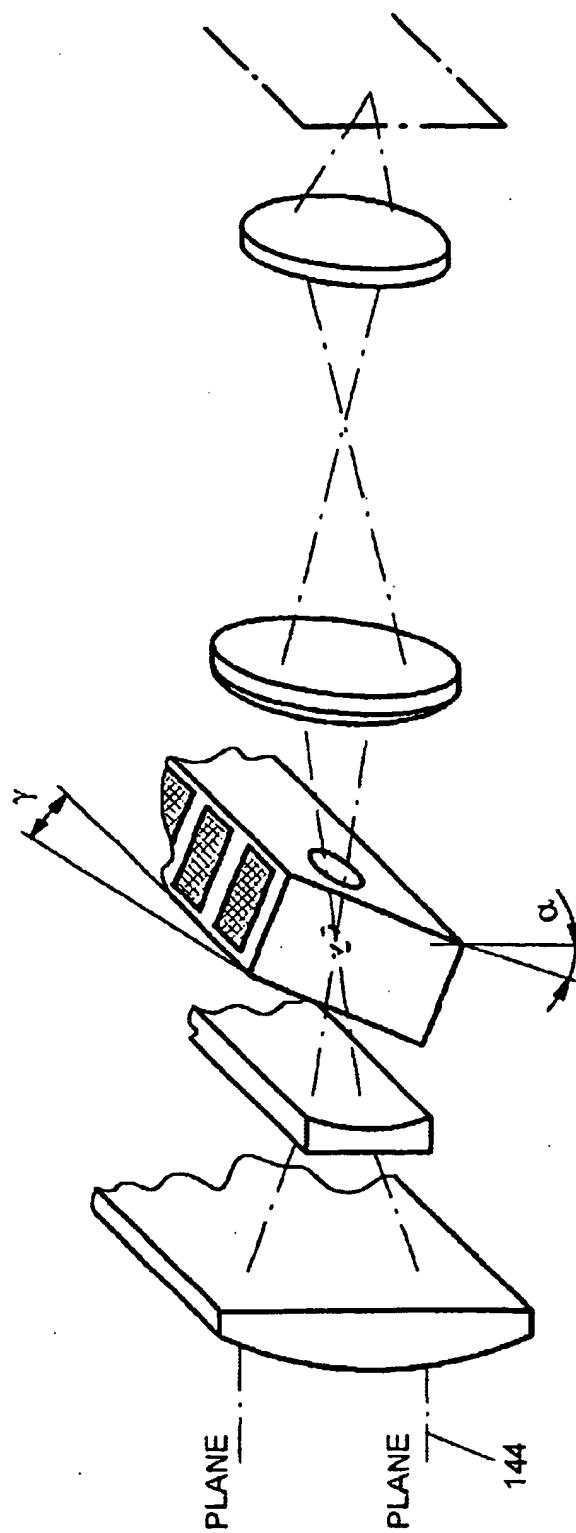


Fig. 38

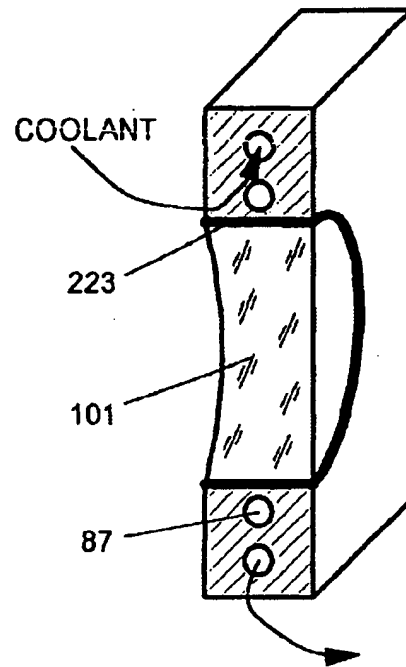


Fig. 39

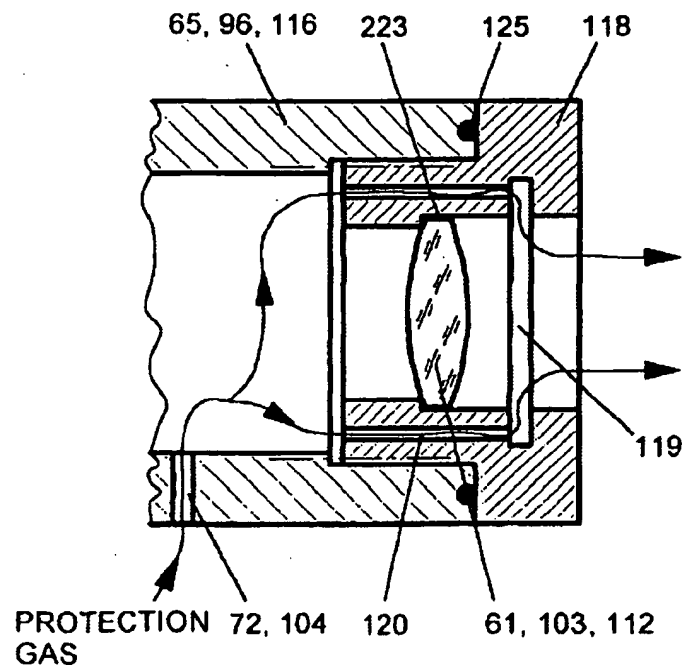


Fig. 39a

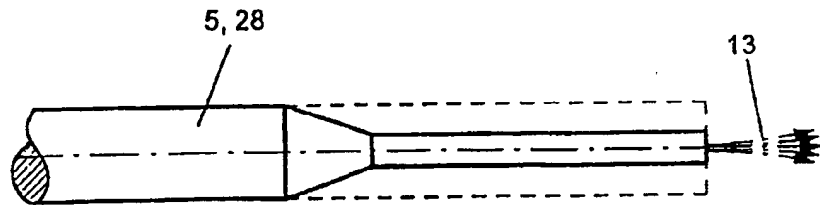


Fig. 40

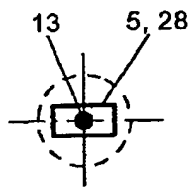


Fig. 40a

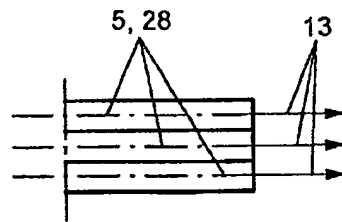


Fig. 40b

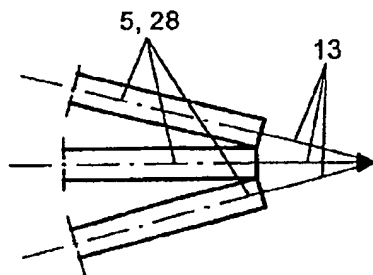


Fig. 40c

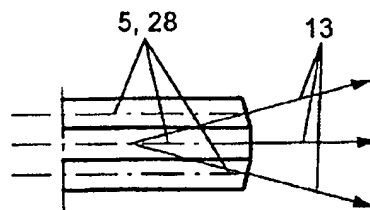


Fig. 40d

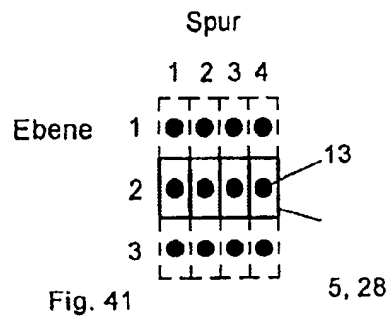
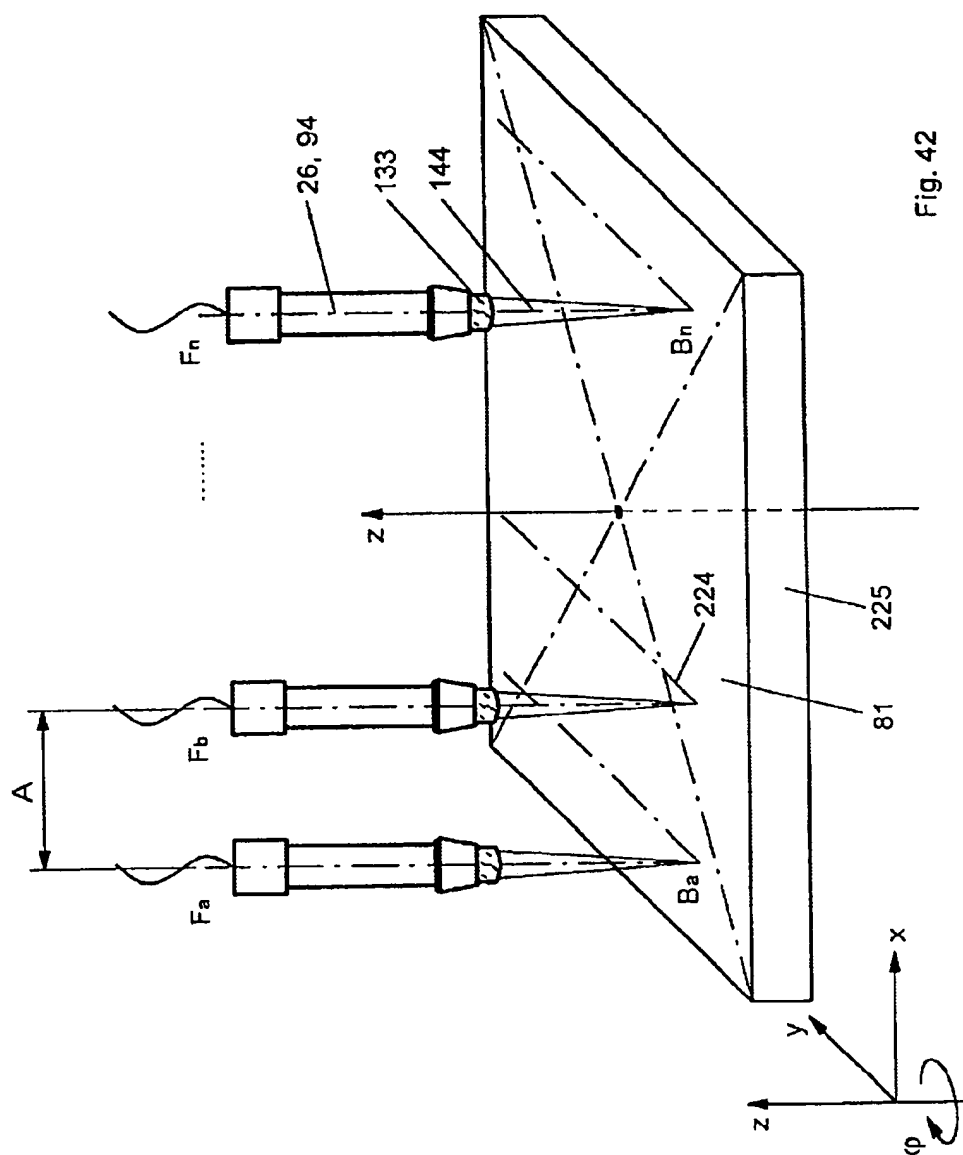


Fig. 41



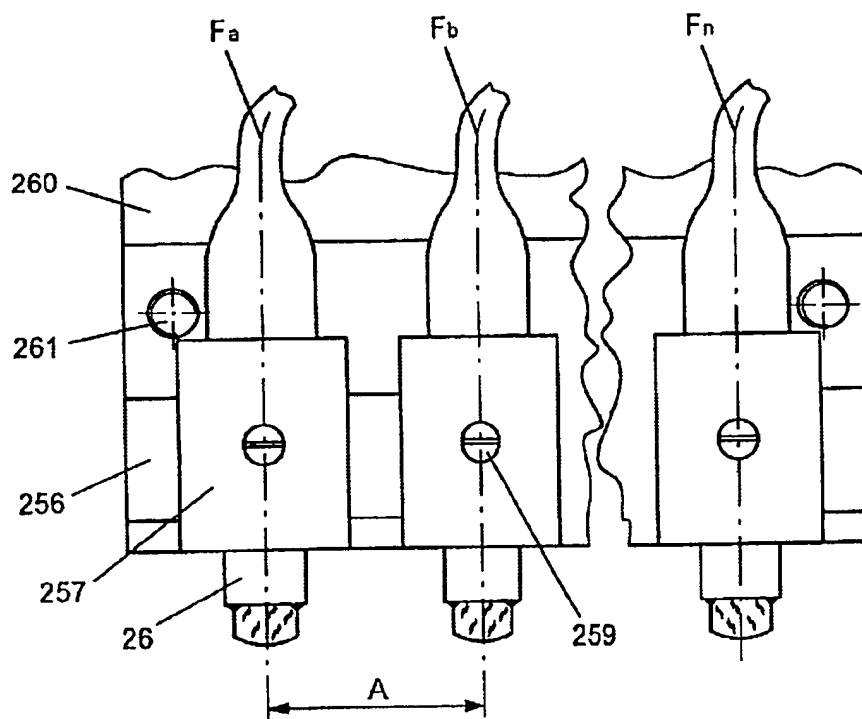


Fig. 42a

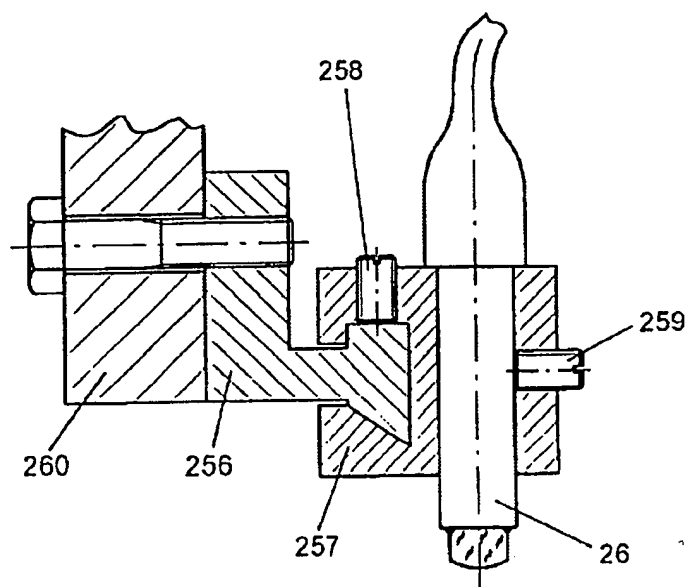
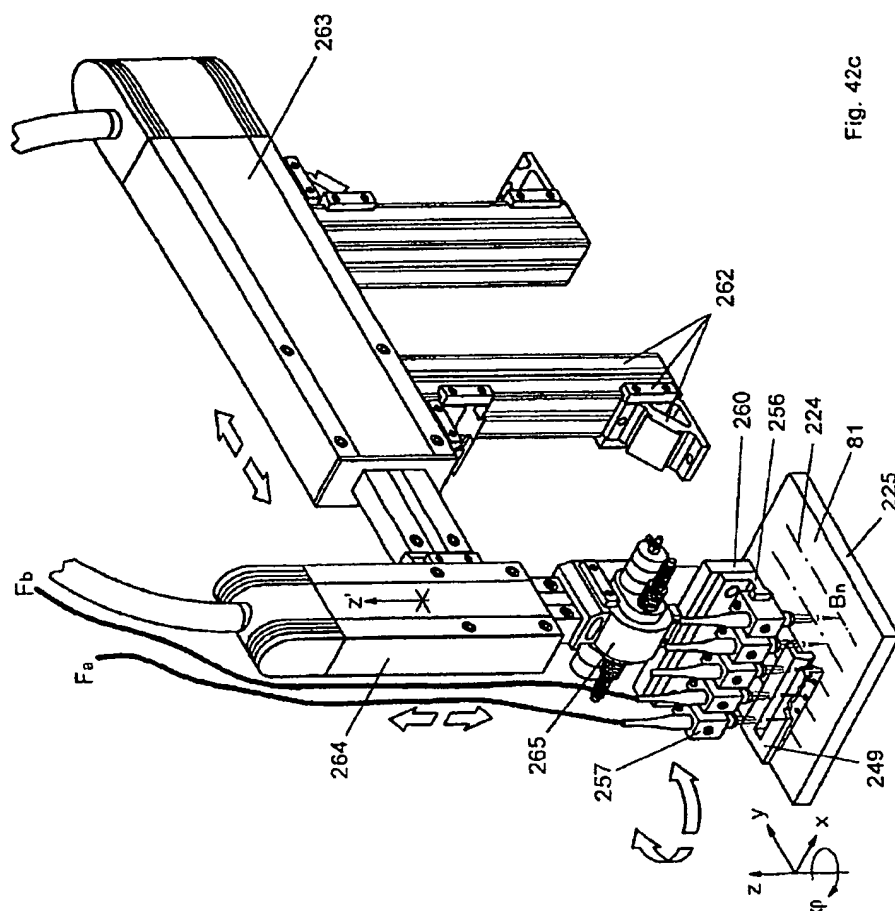
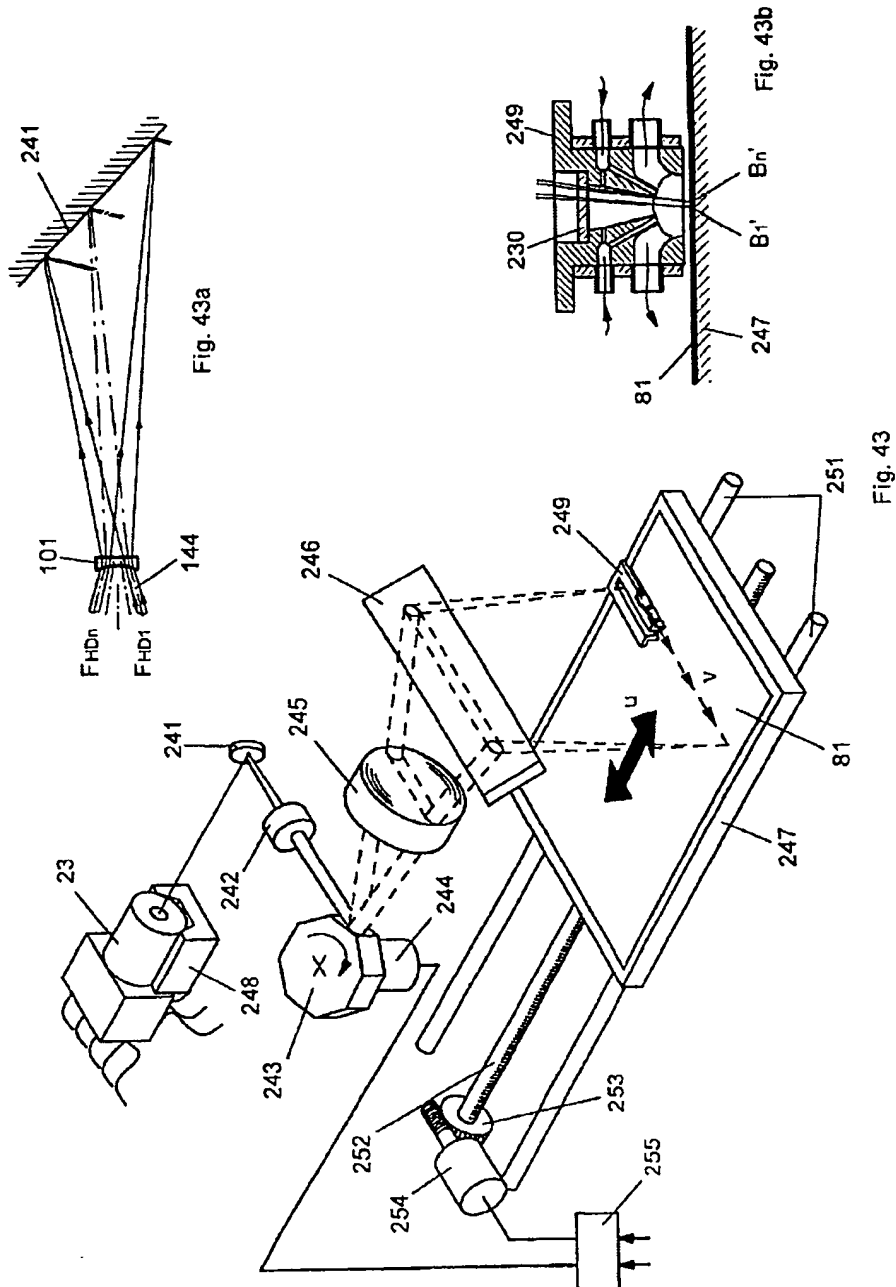
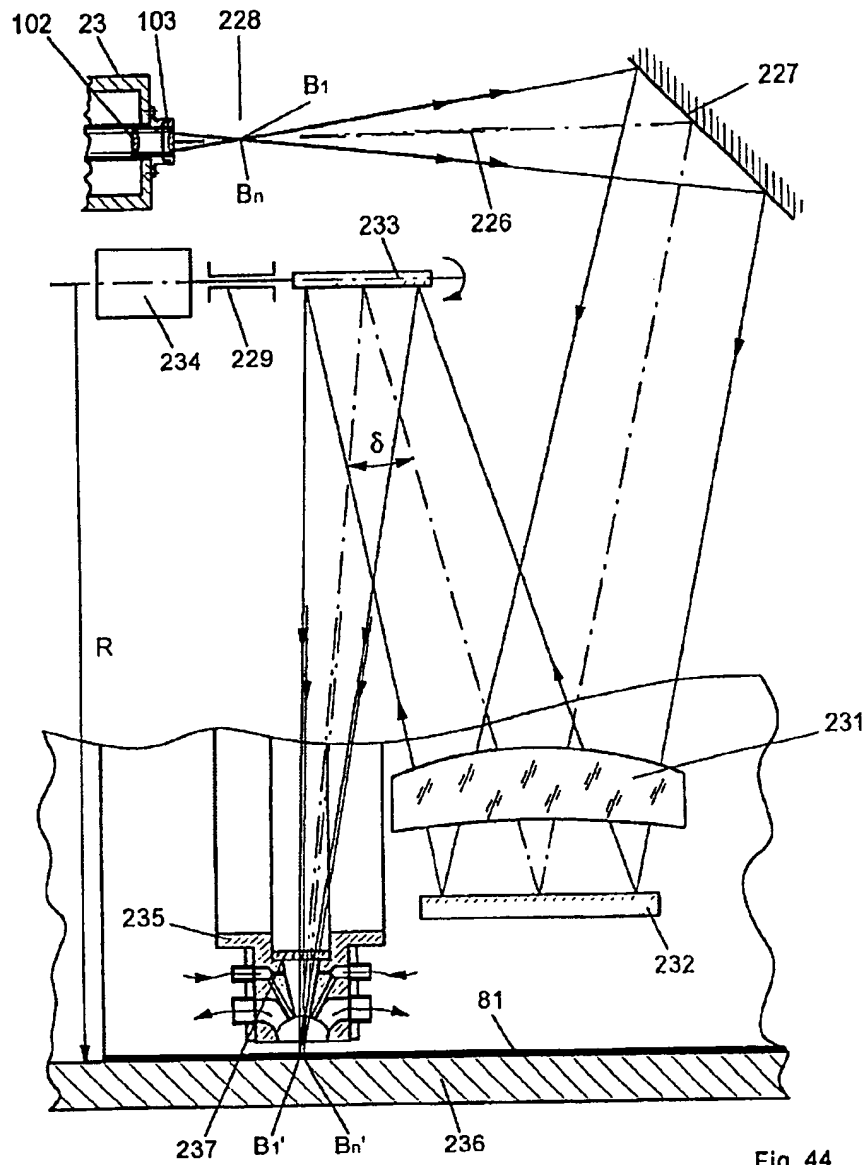
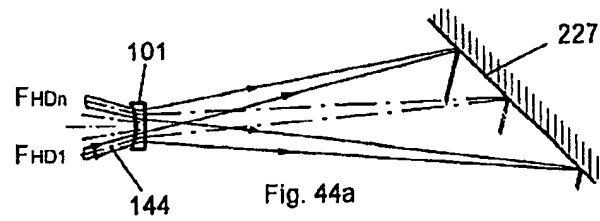


Fig. 42b







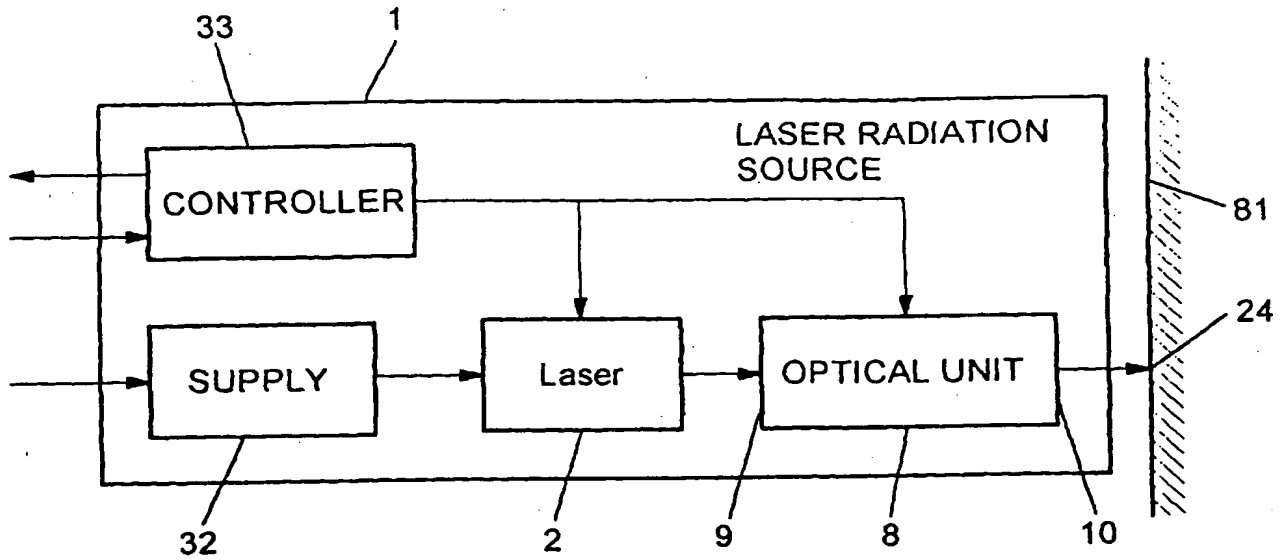


Fig. 1

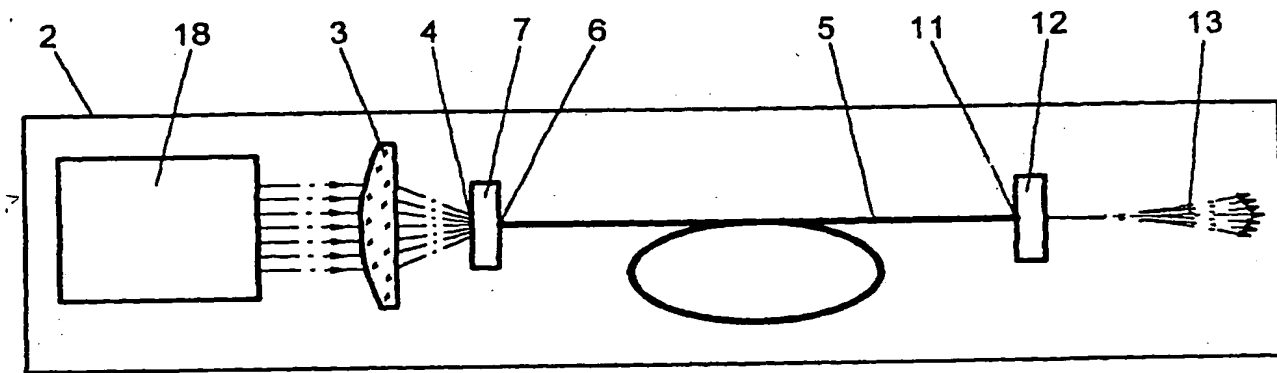


Fig. 2
(PRIOR ART)

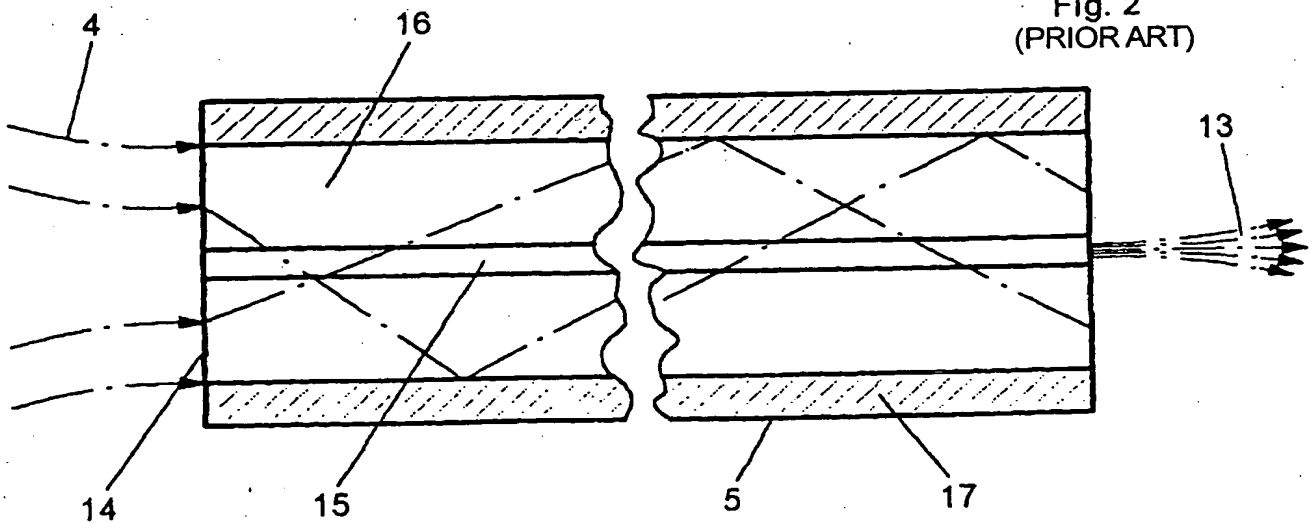


Fig. 2a
(PRIOR ART)

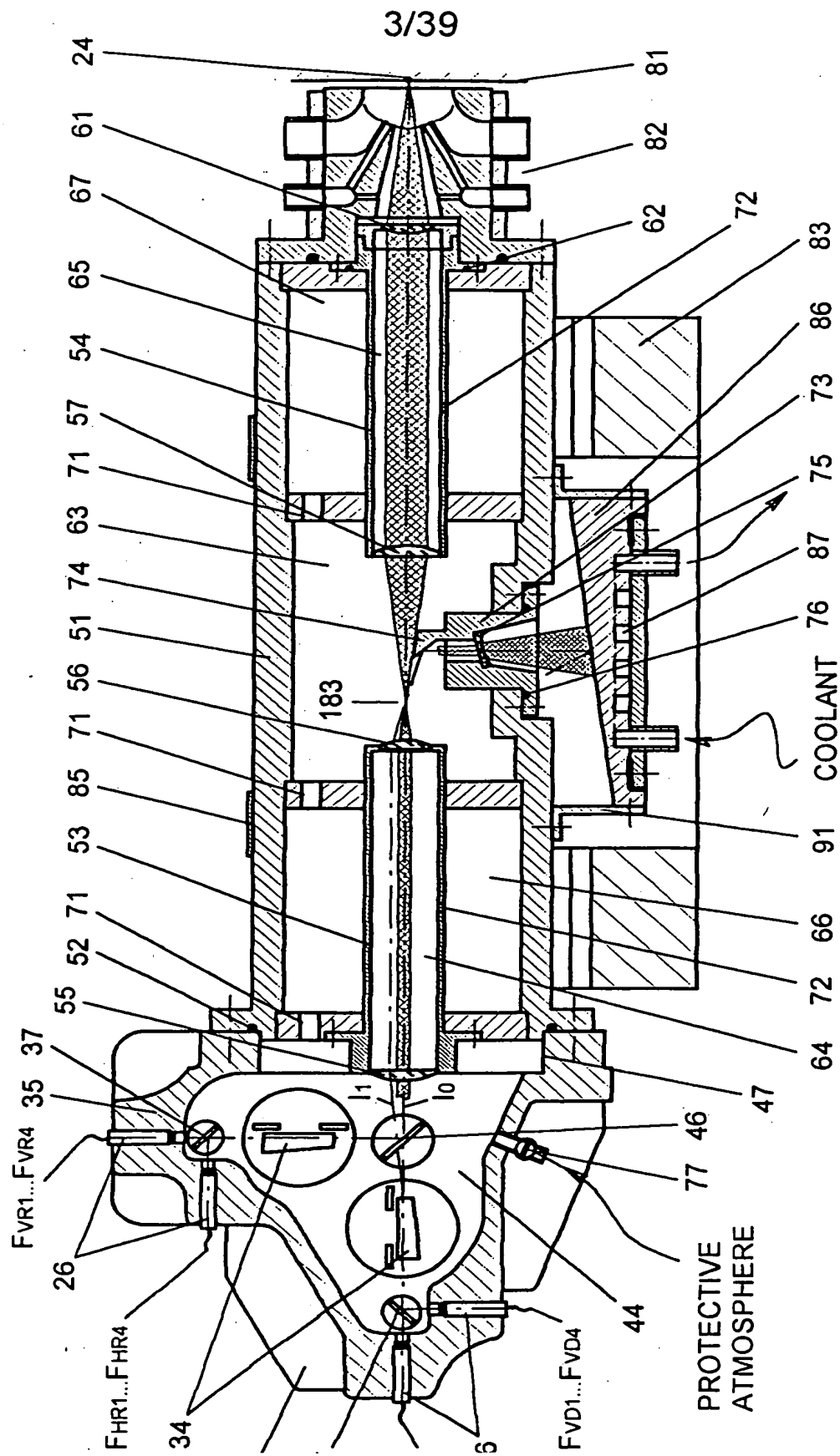


Fig. 4

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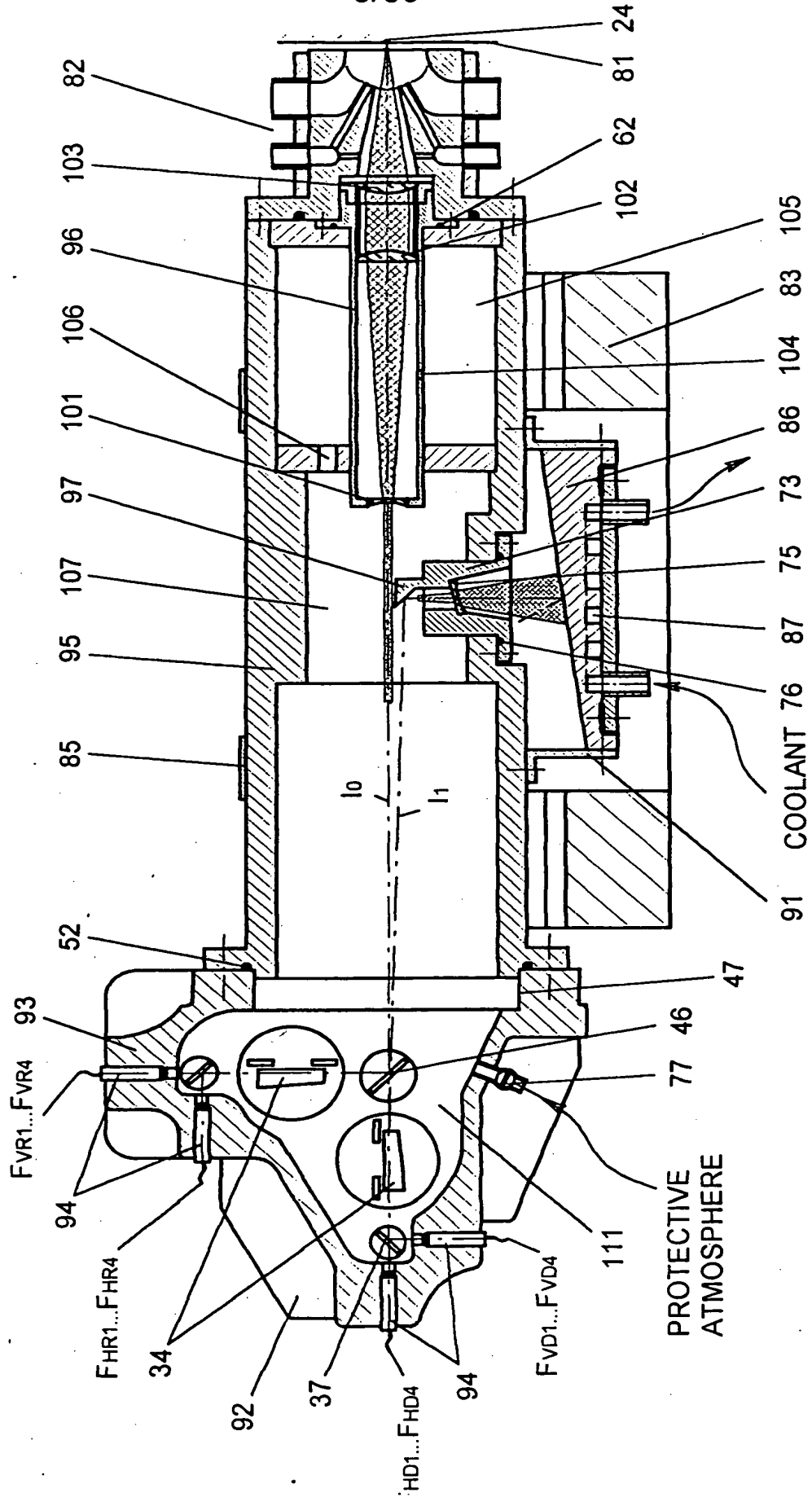


Fig. 4b

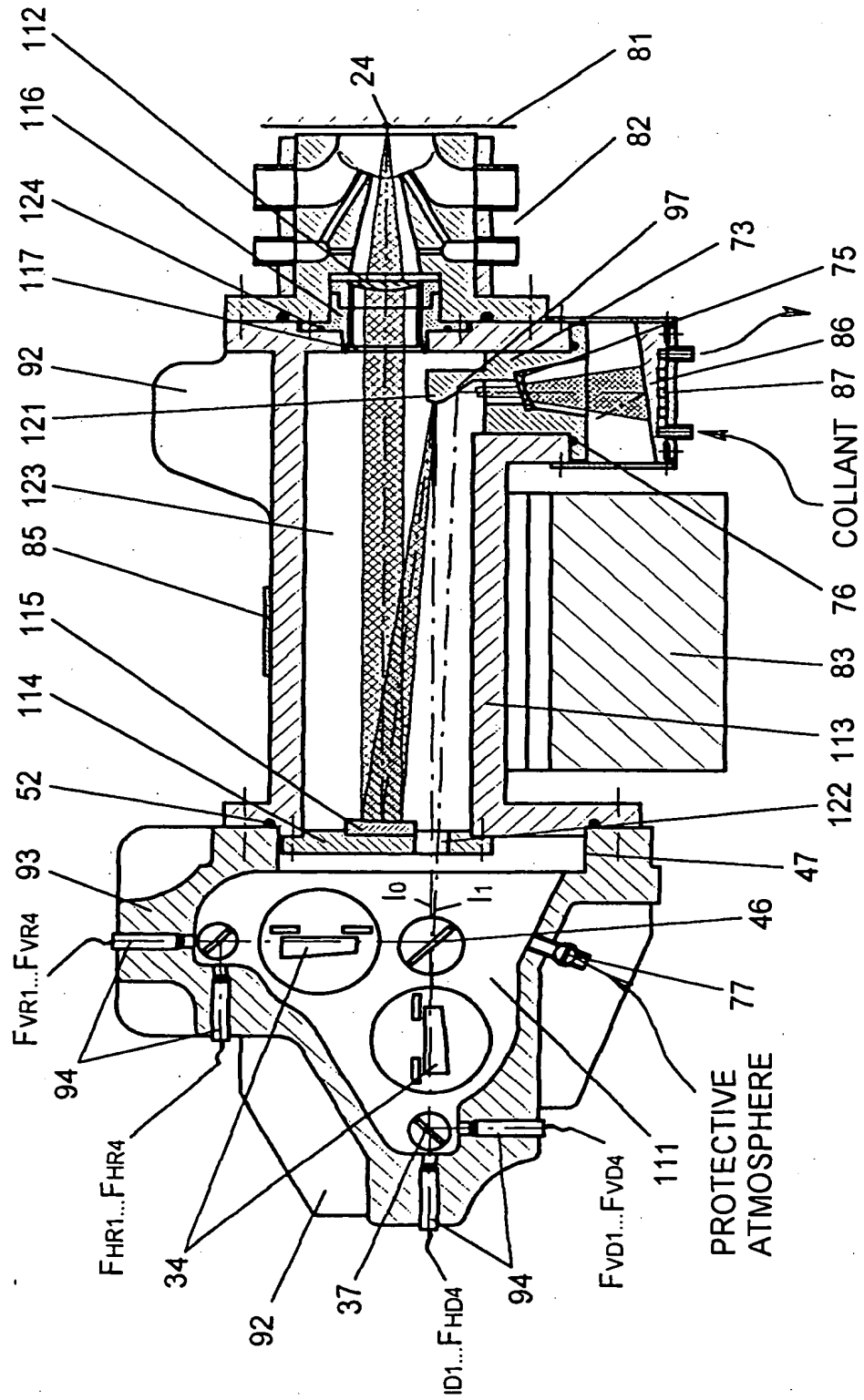
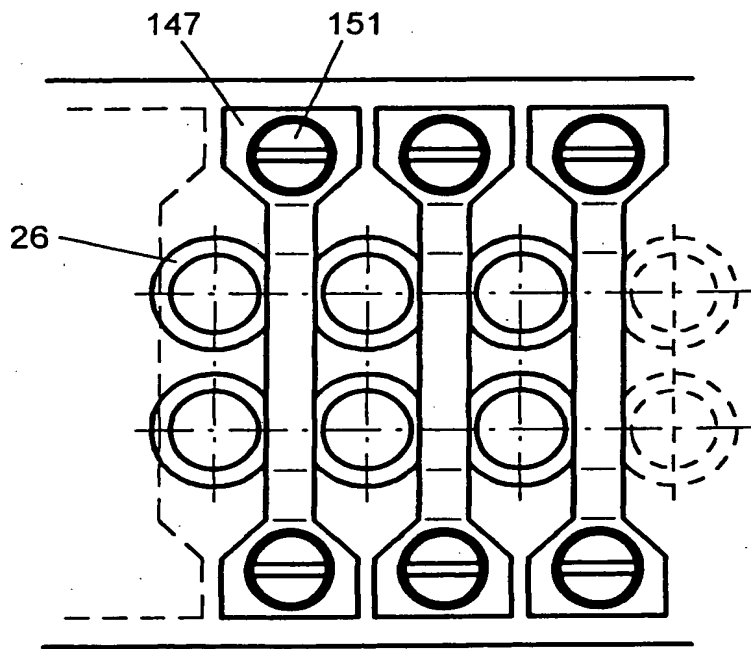
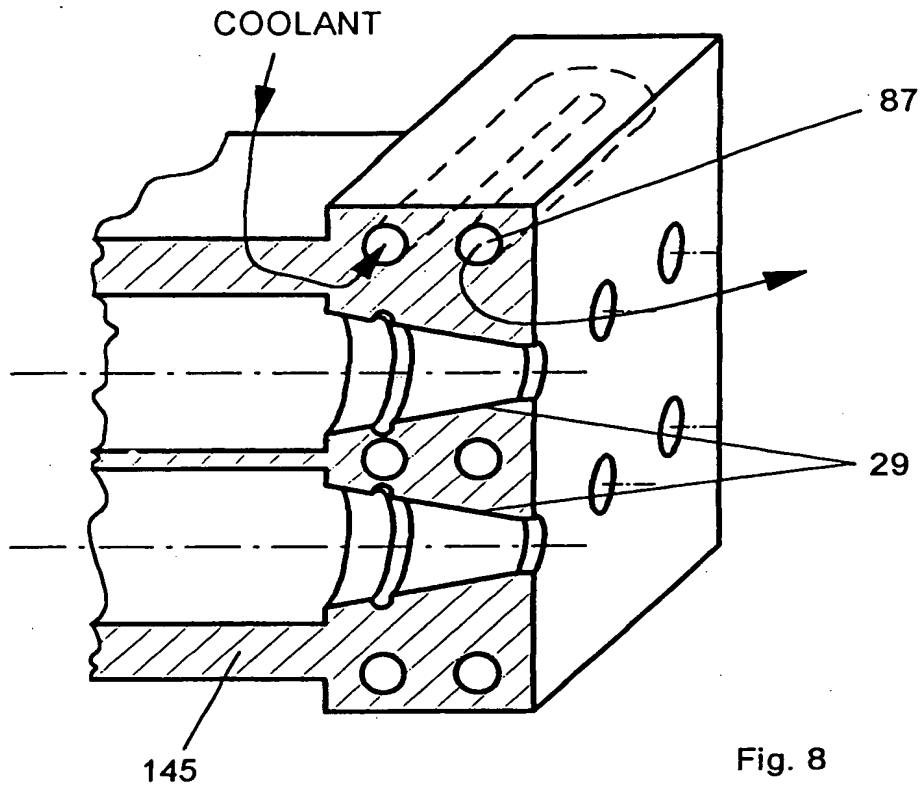


Fig. 4c



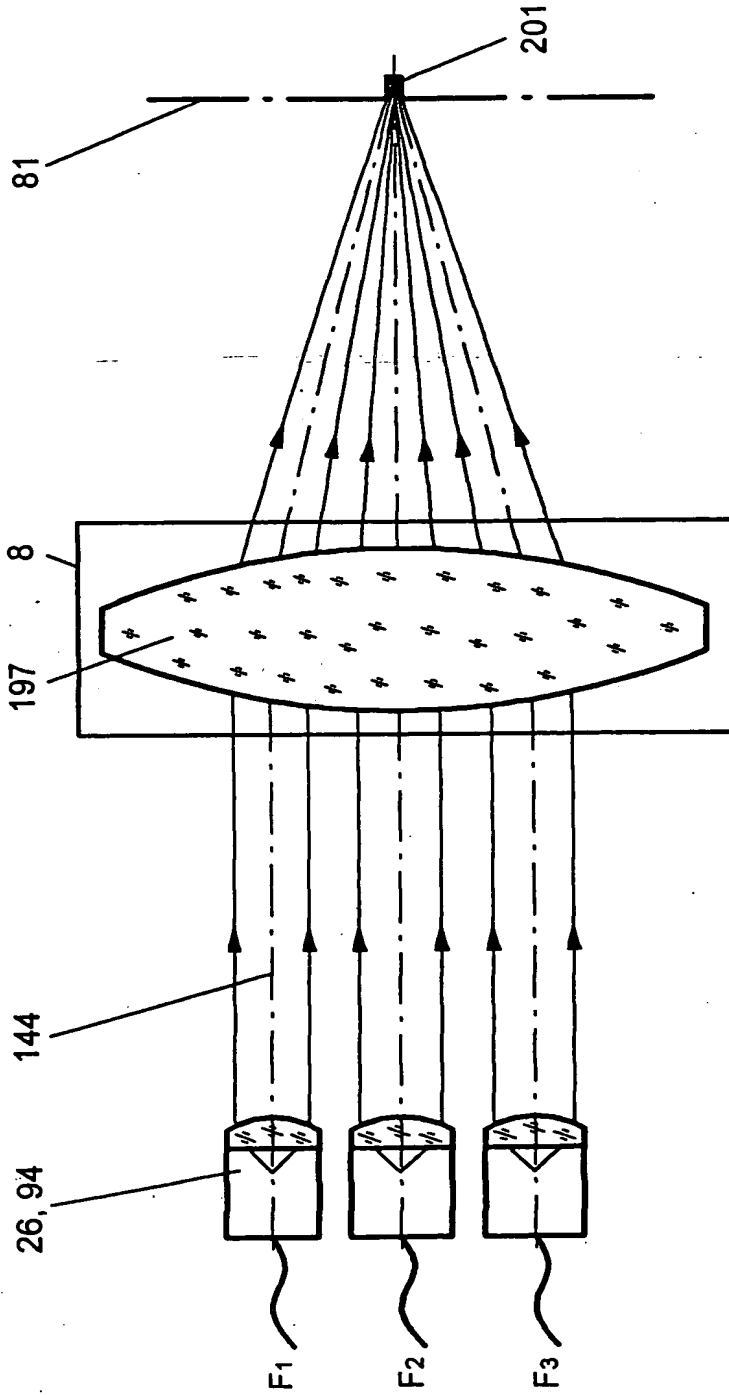


Fig. 31

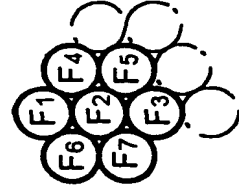


Fig. 30

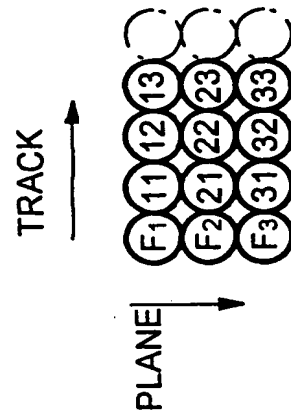


Fig. 29

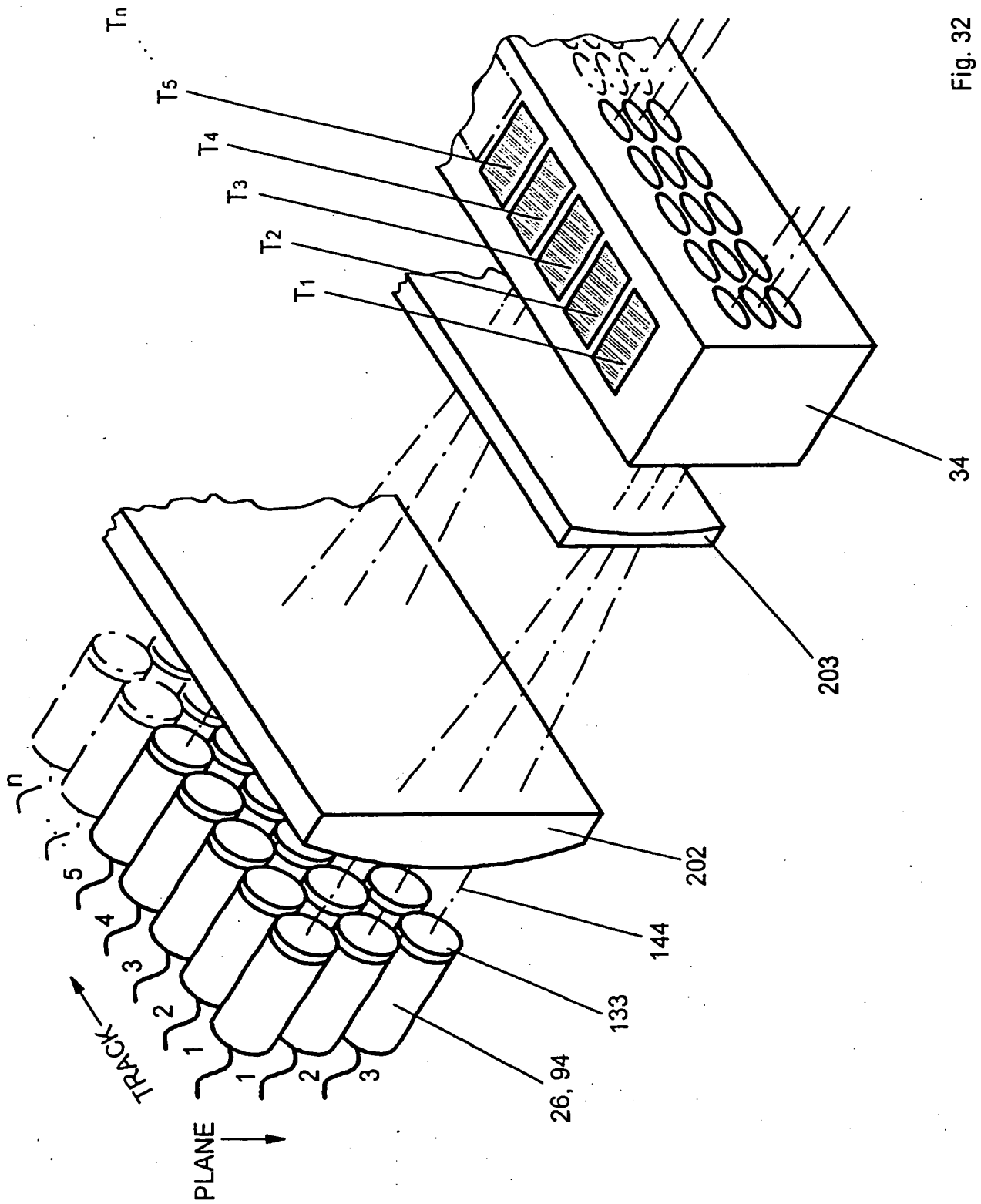


Fig. 32



Fig. 33

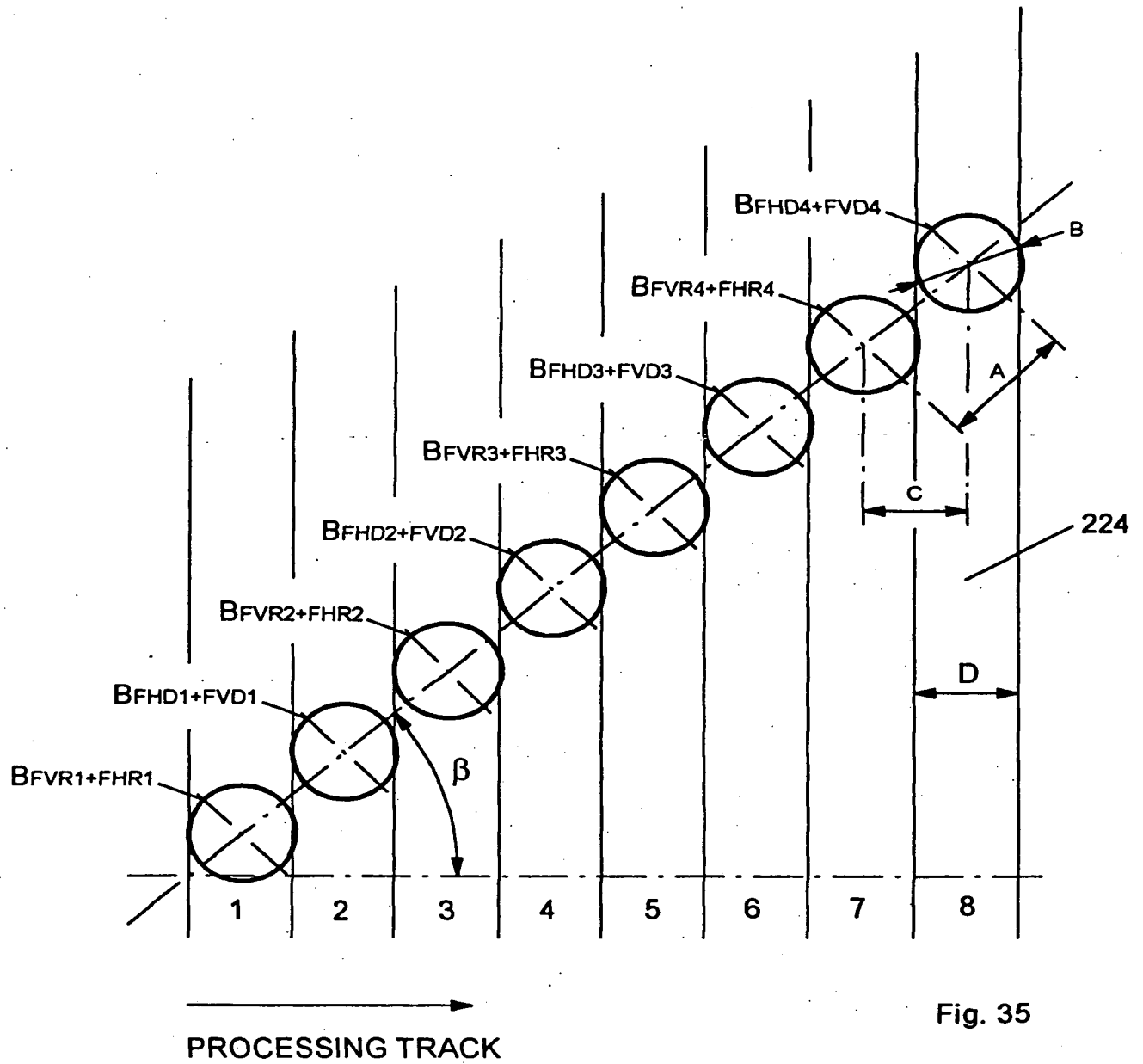


Fig. 35

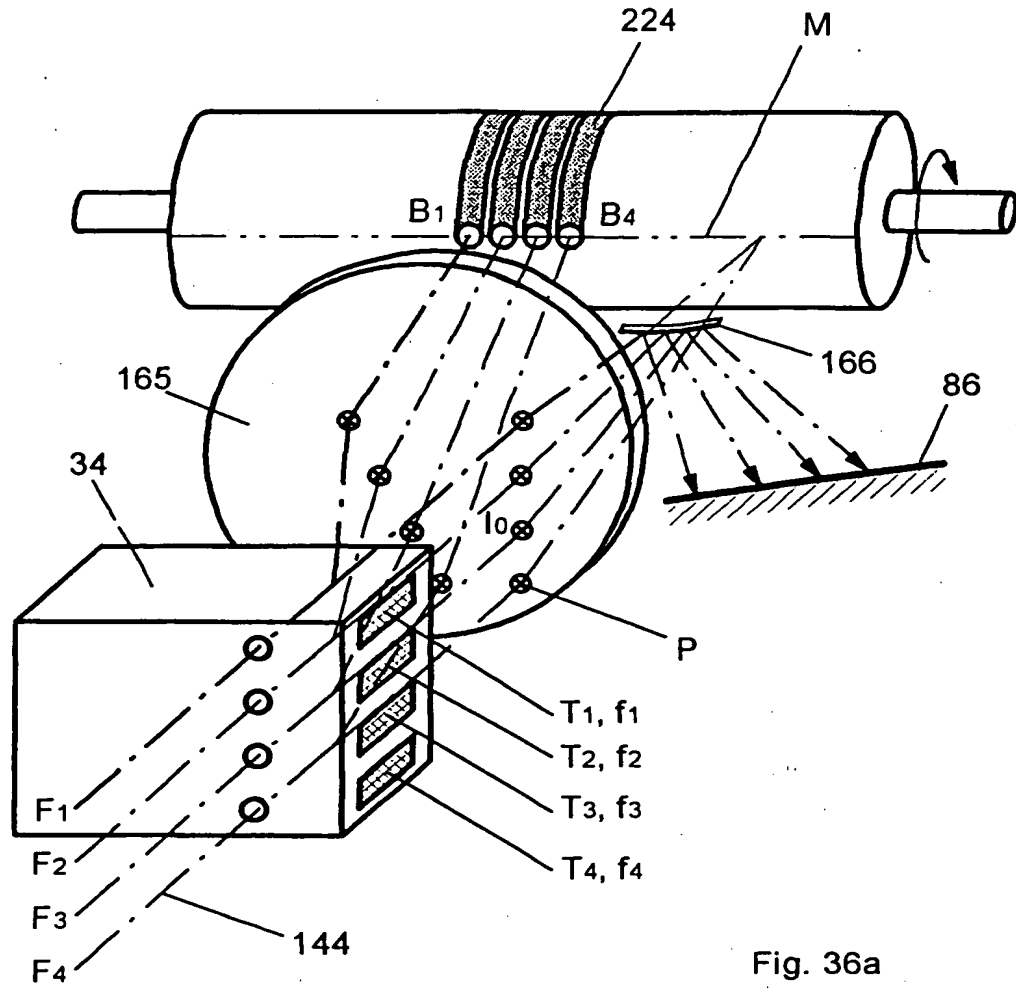


Fig. 36a

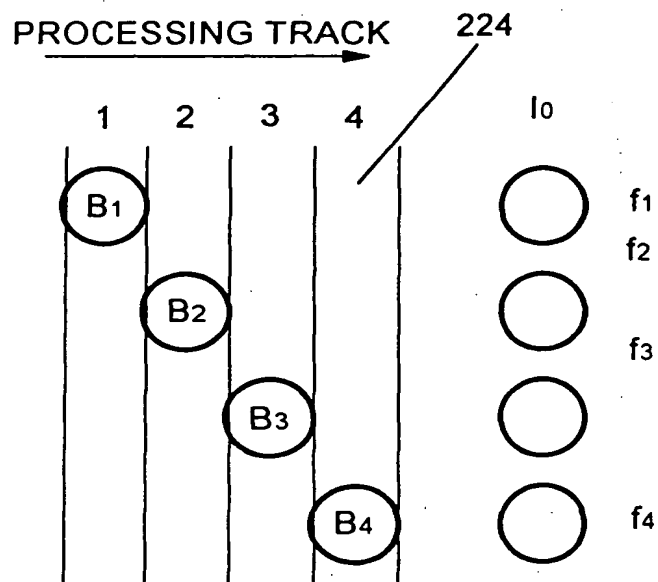


Fig. 36

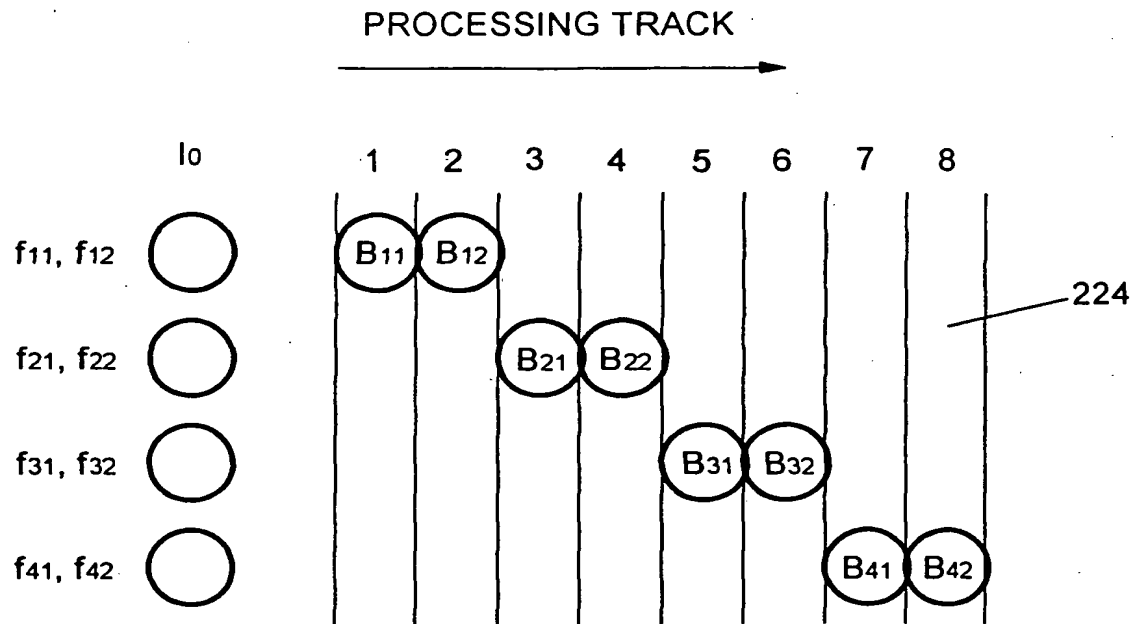


Fig. 37

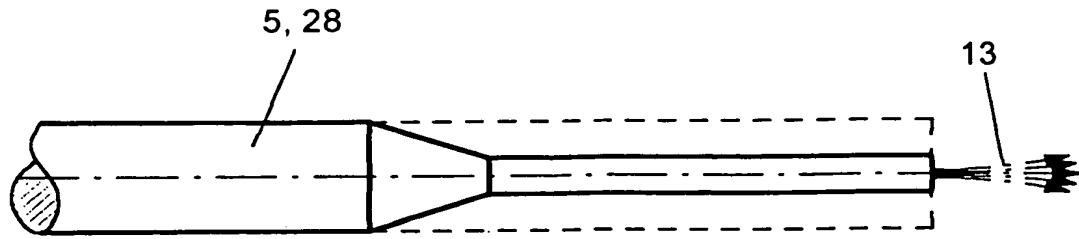


Fig. 40

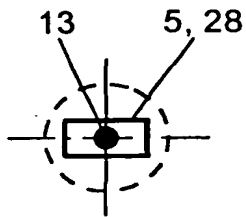


Fig. 40a

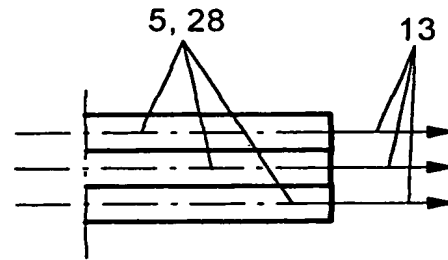


Fig. 40b

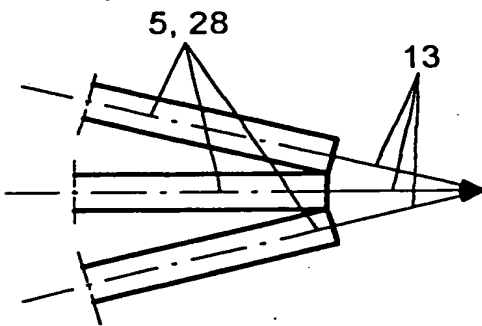


Fig. 40c

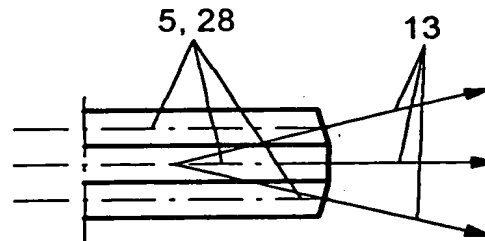


Fig. 40d

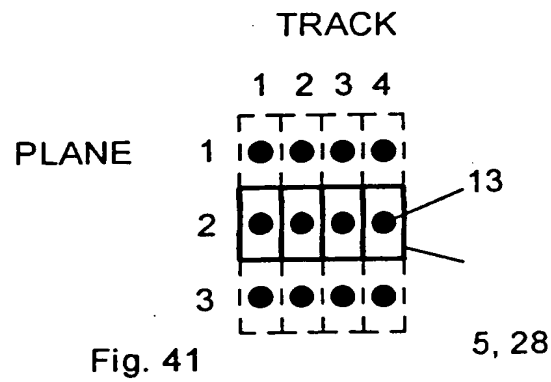


Fig. 41

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